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ORIGINAL ARTICLES.

HOT-AIR INHALATIONS IN PULMONARY TUBERCULOSIS.[1]

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THE exact value of any therapeutic measure in the treatment of phthisis can only be determined after a considerable lapse of time and a comparison of the clinical reports of different observers made on an extensive scale. The present notes, therefore, which only embrace the study of four cases treated for periods varying from one to a little over four months, can necessarily constitute but a very meagre contribution to the clinical side of the question. Inasmuch, however, as the inhalation of hot air has been put forward as a distinctly antiparasitical method, the report of some observed facts bearing on the bacterial study of these cases may, even at this early date, prove of some value in reaching a conclusion regarding its merits as a specific.

The literature of the subject has until recently been confined to the observations of Louis Halter,[2] published in September, 1888, on the immunity of lime-burners from pulmonary phthisis; to the work of Dr. Krull[3] on hot-air inhalations for tuberculosis, and to a paper published by Dr. Louis Weigert in the *Medical Record* for December, 1888. More recently articles by A. Jacobi,[4] Renzi,[5] Kohschutter,[6] and Sears,[7] reporting the results of their observations in treating phthisis by this method have appeared. Dr. Weigert's claims were to have discovered in hot-air inhalations a specific treatment for tuberculosis, and that this disease could be cured by the use of an apparatus devised by himself for the purpose.

In his article, hot-air inhalations are distinctly put forward as a specific for pulmonary tuberculosis. They are not held to be merely a therapeutic measure of more or less service, and no influence other than their efficacy in checking the growth and multiplication of the tubercle bacillus is claimed for them. Based on well-observed facts relating to the narrow temperature range of this microbe, the diminution of virulence which may be brought about in certain pathogenic bacteria by growing them at high temperatures, and the efficacy of discontinuous sterilization, this plan of treatment is worthy of serious consideration.

Are inhalations of dry hot air capable of preventing the growth of the bacillus tuberculosis in the lungs of living individuals, or of diminishing the virulence of this microbe? The present notes are but a collection of clinical facts and bacteriological observations made by the writer in attempting a solution of this question. The clinical study includes four cases: the first three will be briefly outlined, while the fourth, for reasons that will appear hereafter, will be given more in detail.

These three patients had all been ill less than a year, and presented the rational and physical signs of moderately advanced pulmonary tuberculosis in its first stages; in one only was a small excavation present. The sputum, which contained bacilli in all the cases, was examined every month, and careful records of the vital signs were kept. These patients took the treatment continuously for periods of one month, six weeks, and a little over three months respectively; the time of inhalation was rapidly run up to four hours daily, divided into two sittings, during which the temperature of the inhaled air (as measured by the thermometer on the mouthpiece), was maintained over 200° C. (392° F.).

The results were as follows: In the first and second cases slight improvement in all the symptoms occurred at once, but the patients became discouraged and could not be persuaded to continue the inhalations. The third patient kept up the treatment most rigorously for over three months without the least noticeable effect.

The history of the fourth patient before and after treatment was as follows:

January 28, 1889. R., clerk, aged twenty-three; no family history of phthisis. Taken ill July, 1888, with hæmoptysis; has all the rational signs of progressive pulmonary tuberculosis in its first stages; has lost ten pounds. Both lungs are involved. At right apex prolonged bronchial expiration; with fine and coarse râles both back and front, involving the upper lobe. At left apex breathing good, except under the clavicle, where some fine crackles and loss of breath-sounds prevail. Temperature P.M. daily,

[1] Read before the Association of American Physicians, Sept. 20. 1889.

[2] Berliner klinische Wochenschrift, September, 1888.

[3] Ibid.

[4] New York Academy of Medicine, June 20, 1889.

[5] Morgagni, No. 17, 1889, and Centr. f. die gesammt. Ther., June, 1889.

[6] Inter. klin. Rundschau, No. 10, 1889.

[7] Boston Medical and Surgical Reporter, July 11, 1889.

101½° to 102°; respiration 24; pulse 100 to 120. Expectoration moderate in quantity and purulent.

Began treatment February 18, 1889, and inhaled air at 200° C. to 210° C. (392° to 410° F.) four hours daily, with but trifling intermissions, until June 20, 1889. A complete record of the vital signs was kept, and the sputum was examined every five weeks for bacilli. His condition at the end of treatment (a little over four months) was as follows: *Physical signs*, show marked decrease in the amount of râles, which have entirely disappeared over right scapular region. *Rational signs:* Weight has increased 10 pounds; pulse shows an average decrease of 8 beats; respiration has fallen from 24 to 19 on an average; temperature usually about 2° Fahr. lower; sweats have disappeared; dyspnœa improved; no hæmoptysis; expectoration has diminished two-thirds in quantity and is still muco-purulent in the morning. The improvement reached its height about three months from the inception of treatment; some of the ground gained was slowly lost during the fourth month, though the inhalations were faithfully continued.

This brief clinical study does not furnish evidence which differs materially from that usually obtained on the trial of many specific methods of treatment for tuberculosis hitherto put forward and long ago abandoned. The improvement which manifested itself in one case, though marked, was no greater than was observed to occur at the same time, from climatic and hygienic treatment alone, in several of the man's fellow patients. Whether or no the favorable change noted in his condition can be ascribed to any specific effect produced on the germ element of his disease by breathing the hot air will hereafter be shown conclusively by the inoculation tests to which his sputum was subjected.

These brief clinical notes may be said to furnish no positive proof as to the therapeutic value of the method.

The bacteriological study was as follows: The sputum of all four cases was examined before treatment, at intervals of five weeks during treatment, and as soon as it was abandoned. *In every instance the bacilli were found.* No appreciable influence therefore was produced upon this most important element of the disease.

The claim of diminished virulence was tested in the following manner: Before beginning the inhalations a small portion of the sputum from Case IV. was mixed with sterilized water and injected into the thoracic cavity of three rabbits. The animals were killed five weeks later and a localized tubercular lesion at the site of injection was noted, while transparent miliary tubercles were just visible on the pleura and pericardium. These lesions contained bacilli. The patient having begun to breathe hot air for four hours daily, a small portion of his expectoration was taken every five weeks and injected in the same manner into the thoracic cavity of three rabbits. This was repeated three times—that is, the last set of inoculations was made three months and a half after the treatment had been begun. Each set of rabbits was killed at intervals of five weeks and notes of the autopsies made. They were found to have all developed tubercular lesions containing bacilli, and in the last lot as well as in the others, miliary tubercles occurring at some distance from the site of injection were demonstrated. These tubercles were sufficiently advanced to be macroscopical, and did not differ materially in their appearance from those which had been produced in the animals inoculated with material expectorated by this man before the treatment was instituted. Five weeks being very nearly the earliest date at which secondary tubercle distant from the original lesion appears, microbes capable of causing such manifestations within this limited time can have lost none of their virulence. No diminution in the pathogenic properties of the bacilli seems therefore to have been produced by breathing the heated air.

Although difficult of absolute demonstration, it is most probable that the temperature of the air-cell itself can be influenced but very slightly, no matter how high or how low that of the inspired air may prove to be. The intense vascularity of the lungs, the fixed temperature of the blood rapidly circulating through them (which is relatively low when compared to that of the heated atmosphere furnished by the apparatus), the moisture and infinite subdivision of the surfaces, and the very slow admixture which takes place between the tidal and residual air, all conspire to rob the incoming current of its heat and to confine the possible variations of temperature in the air-cell within very narrow limits.

The inference held out as conclusive that, because the breath on expiration measures as high as 45° C. (113° F.), the air in the air-cells must necessarily be much warmer is fallacious, for the expired air is in a great part composed of the last inspiration still surcharged with its recently acquired heat. As the bacilli in the bronchial secretions must necessarily be brought in much more intimate contact with the hot air than those imbedded in solidified areas of lung or in impermeable tubercular masses, the failure of the latter agent to diminish their virulence to any appreciable degree is most significant.

CONCLUSIONS.

1st. The therapeutic value of hot-air inhalations in phthisis is doubtful.

2d. The evidence obtained by the bacteriological study of the cases presented does not confirm the assumption that inhalations of heated air can either prevent the growth of the tubercle bacillus in the lungs of living individuals or diminish the virulence of this microbe when it has gained access to them.

CHRONIC TONSILLITIS.[1]

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SYNONYM: Hypertrophy of the Tonsils. This affection is characterized either by dilatation of the lacunæ by their retained secretions with hypertrophy of the glandular tissues about them, by distention of the lacunæ without hypertrophy of the glandular tissue, or by simple hypertrophy of the glandular tissue, while the lacunæ are but little involved. About two-thirds of the cases occur in males. The disease is said to be most frequent between the ages of fourteen and sixteen, though it occurs very frequently in younger children, and it is sometimes congenital. It is observed occasionally in middle life, but the tendency to it diminishes with advancing years.

Anatomical and pathological characteristics.—The tonsil is enlarged, and either of a pink, bright red, or yellowish-pink color; but most frequently it is a little lighter than the natural color of the mucous membrane. The bright red color is not common. In this affection the tonsil may measure from three-eighths to one and one-eighth or more inches in diameter, and it usually weighs one or two drachms. In some instances the tissue is very friable, so that it can be readily broken up by the finger, while in others it is exceedingly firm and like fibrous tissue to cut. Usually there will be a collection of secretions in some of the lacunæ, forming little yellowish points at the surface. If a probe is passed into these a considerable quantity of cheesy matter may often be removed. In rare cases the lacunæ are involved with out hypertrophy of the glands: I have seen within the last year several cases in which a number of the diseased follicles with their retained secretions were visible on each side, and yet the whole gland was not larger than normal.

If the gland is very large, it may seriously interfere with respiration so as greatly to impair the patient's general health; the patient being much as one who lives in a cellar, with only half the normal allowance of oxygen. It is claimed by some that hypertrophy of the tonsils increases the tendency to diphtheria in young children, and adds much to the danger from an attack of this disease. Persons with this affection are much more subject to attacks of acute tonsillitis than those in whom the tonsils are not enlarged. In a few cases permanent deformities result from enlargement of the tonsils. The most pronounced of these is the pyriform chest, caused by the upper portion of the thorax being forcibly distended and the lower retracted with each inspiration, until finally the condition becomes permanent. This could hardly happen in a child fifteen or sixteen years of age, but in young children, where the bones are soft and the cartilages elastic, it is an easy matter for such changes to occur.

Etiology.—Among the causes of chronic tonsillitis are: repeated acute attacks of inflammation of the gland, the strumous diathesis, diphtheria, scarlatina, and measles. Occasionally the disease seems to be hereditary, as it is not infrequent to find families in which several members have had hypertrophy of the tonsils, and the parents before them. Chronic follicular pharyngitis is said to be a cause, but appears only a concomitant. Acquired syphilis is sometimes a cause with adults. In May, 1888, Dr. Gradle, of Chicago, presented a paper to the American Medical Association, in which he advanced the opinion that chronic follicular tonsillitis is of bacterial origin. To prove this theory he cited the fact that secretions taken from one of the lacunæ and placed under the microscope will be found swarming with bacilli, though he admitted they were not of a specific variety, but of various kinds. This admission seems of itself almost sufficient to disprove the hypothesis. The decomposition of any animal substance is necessarily attended by the development of a large number of bacilli, and the fact that they may be seen microscopically is no more reason for believing that the bacilli cause the disease than the macroscopic discovery of maggots in a carcass would be for supposing we had found the cause of the animal's death.

Symptomatology—Inquiring into the history of chronic tonsillitis, we frequently find evidence of hereditary origin, but in most cases the patient has suffered from frequent attacks of acute inflammation of the gland, or the disease has had its beginning in an attack of diphtheria or scarlatina. When the tonsils are much enlarged the respiration is more or less obstructed, and the voice is altered in resonance and quality. Partial deafness, due to pressure of the gland upon the Eustachian orifice or to extension of the inflammation, is not uncommon. Occasionally the senses of taste and smell are much impaired as a result of this disease, and it is said that in rare instances even the sense of sight has been affected. Patients rarely experience pain, but not unfrequently they complain of a sensation as of a foreign body in the throat, which they are continually trying to swallow. In children where the disease has existed for a considerable time, the patient's mouth is almost constantly open, the eyes dull, and there is an appearance of lack of intellect which is almost characteristic of the disease. Hoarseness is common, but more frequently the voice sounds as though the patient was talking with something in the mouth. Many of these patients become easily fatigued on taking exercise, because the blood is not properly aërated. Sometimes the obstruction to respiration is not marked in the daytime, but is

[1] Read before the Mississippi Valley Medical Association, at Evansville, Indiana, September 11, 1889.

very pronounced at night as the patient sleeps, and if the tonsils are very much enlarged it may be extremely difficult and so noisy that it is impossible for others to sleep in the same room. In rare instances there is actual danger of suffocation. I have seen two cases of chronic tonsillitis in young children where I thought it a very serious matter to allow the glands to remain for even a few days. Cough is sometimes, though rarely, present. It is especially apt to occur at night, and may be due partially to the enlargement of the tonsils and partially to the elongation of the uvula, which is a frequent attendant. In young children swallowing is sometimes quite difficult from the mechanical impediment.

The enlarged glands may be easily seen, and usually upon the surface of each the orifices of three or four crypts about an eighth of an inch in diameter are plainly discernible. In some cases, even when the tonsils are much enlarged, as we look into the mouth the gland can hardly be seen and we notice only an unusual fulness on each side of the fauces, until the patient retches, when the tonsils are rolled out so as almost to touch in the middle line.

Diagnosis.—The diagnosis may be easily made by inspection, but occasionally, where the anterior pillar of the fauces hides the tonsil, palpation may be necessary to determine the exact size of the gland.

Prognosis.—When the tonsils enlarge in early childhood they will sometimes disappear about the fourteenth year. Hypertrophy of the tonsils occurring in youth or in early adult life will often disappear about the thirtieth year; however, in the meantime the general health may have been greatly injured, or some of the special senses permanently impaired. We must remember, also, the tendency to frequent acute inflammations, and the possibility that this affection predisposes to serious attacks of diphtheria.

Treatment.—Excision is the most satisfactory treatment, but for simple hypertrophy I am accustomed to recommend those who do not wish operative procedures to moisten the finger, dip it into dried alum and rub it thoroughly into the gland once a day. This treatment must be continued for several months, and will be effectual in some cases in which the glands are quite soft. Another method is to inject into the gland with a hypodermic syringe iodine, ergotine, or carbolic acid. The tincture of iodine may be injected to the amount of five or ten minims; or, in a similar way, ergotine one to ten grains with alcohol, or carbolic acid one to three grains with water or glycerine, commencing always with the smaller quantities. Counter-irritation has sometimes, though not often, been found useful. Linimentum ammonii applied daily about the angle of the jaw will occasionally reduce the size of the glands. Electrolysis has also been recommended, one needle being passed into the tonsil, the other electrode being applied by means of a wet sponge externally, or both needles being inserted in the gland. The method is tedious but sometimes effective. Chromic acid is also used for reducing the glands, either in solution or in the form of crystals. In applying the crystals only a small amount should be used, and it is better to fuse it on a probe so that there will be no danger of its dropping into the throat.

The galvano-cautery has been highly recommended for the reduction of these enlarged glands. When it is used a small pointed electrode about one-fourth of an inch in length and from one-sixteenth to one-eighth of an inch wide should be heated to a white heat and plunged into each tonsil in one or two places at each sitting. The operation should not be repeated in less than three days, and it is usually best to wait a week or ten days. This will eventually reduce the size of the gland, but it is a tedious process. In the majority of the cases twenty or thirty sittings will be required and each one will give the patient almost as much discomfort as the removal of the gland by the tonsillitome. But we occasionally find people who strenuously object to the use of the knife and who will submit to treatment by this method. Occasionally when the glands are soft ten or twelve operations will suffice.

Excision is doubtless the best treatment for the majority of cases. The direction was formerly given, and is still found in some of the works on surgery, that the gland be seized with a pair of forceps and cut out with a bistoury, much care being used to avoid cutting important arteries; but many modern surgeons have come to believe that the tonsillitome is far superior to the bistoury for this operation. I think it is always to be preferred. There is a large variety of tonsillitomes, and of these there are many instruments that will answer the purpose very well, but I have found Mathieu's (Fig. 1) most satisfactory for all sorts of cases. This instrument may be readily taken apart for cleaning or sharpening. It is made in two or three sizes, but the larger will answer for nearly every case, though a smaller one is desirable for young children.

In using any tonsillitome it is well to have an assistant make firm pressure back of the angle of the jaw with the finger in order that the gland may be thoroughly exposed, and whenever it is adherent to the anterior pillar of the fauces the adhesion should be broken up before excision is attempted. In using this instrument place the ring, containing the knife, around the tonsil and with the other hand press it firmly against the side. Then with a single movement of closing the hand, the spear is forced through the gland, the latter pulled well through the fenestrum and at the same time the knife is released and

cuts its way through so that the whole painful part of the operation requires only the fraction of a second. Some surgeons advise simply clipping off the surface of the tonsil, hoping that the remainder may be absorbed, but I believe it is far better to remove all the diseased mass, if possible, and the nearer we come to this the better it will be for our patient. Remember that in the perfectly healthy throat no tonsils can be seen.

FIG. 1.

Mathieu's tonsillitome.

FIG. 2.

Ingals's tonsil forceps.

There are some cases in which the patient is subject to frequent attacks of tonsillitis, but in whom at other times there is very little enlargement of the gland, so that it cannot be removed when inflammation is not present. In such cases Lennox Browne recommends us to wait until inflammation and swelling of the gland occur, and then to remove it, as this is the only way in which a thorough operation can be made. There is a serious objection to removing a tonsil when inflamed, in that it is liable to bleed excessively, but in the cases just mentioned there is no choice unless we adopt other methods of destroying the gland. The galvano-cautery seems to me best adapted to the treatment of these cases. In the only instance where I have followed Mr. Browne's suggestion alarming hemorrhage occurred and continued in spite of all the approved methods of checking it until the patient fainted.

It is usually an easy matter to remove the tonsils in adults or in tractable children. But if the child from fright or other reasons refuses to submit, it must be held by main force, and the mouth must be pried open, and the teeth kept apart by a gag, if the ordinary operation is to be performed. But with most children it seems to me a cruel thing to operate in this way. I do not think an adult could suffer more mentally, going to his own execution, than a little child in having the tonsils removed. The first tonsil might, in many instances, be removed without much distress, but the removal of the second inflicts an amount of torture which children should not be called upon to endure. It is my rule with all children who are timid about the operation to administer chloroform or ether, and remove the glands with the steel-wire snare.

Exceptionally we find the tonsil of such form that it may be easily caught by the snare, but usually the wire will not hold. To overcome this difficulty I have had made a tonsillotomy forceps (Fig. 2) which gives perfect satisfaction. It is so constructed that as the blades grasp the tonsil the wire may be easily slipped over them, and must necessarily engage the base of the gland. To remove the tonsils by this method the child is first given an anæsthetic, and laid upon its abdomen with the face close to the edge of the table, then the gag is introduced and the mouth opened widely. The forceps are held by the thumb and second finger of the right hand, like an ordinary dressing forceps. The loop of the snare is then slipped over the blades toward the joint of the instrument, and the snare itself is supported by the little finger of the same hand. While an assistant presses the tonsil inward with his finger behind the angle of the jaw, the operator passes the blades of the forceps back to the pharyngeal wall, and then, as they are opened, draws them forward against the anterior pillar of the fauces, when they are pressed firmly down above and below the tonsil with care to engage simply the gland. The blades are then locked, and the loop of the snare slipped over them and tightened, when it will slide down beneath their ends and cut off the mass. As soon as the snare is firmly applied the forceps may be removed if desired. When the tonsil has been caught properly, the wire loop will slide under it, and the whole gland will be enucleated. In this operation there are two points for special caution: Be careful not to injure the anterior pillar of the fauces with the forceps, and not to engage the tip of the uvula in the snare as it is slipped over the blades.

I have usually used two snares in performing the

operation; having caught the first tonsil and tightened the snare, the forceps have been disengaged and applied with the snare to the other tonsil before the first one was removed, the object being to prevent bleeding until both glands were secured. There is one objection to this method—the first tonsil may be easily secured, but being drawn out of its bed fills the fauces so that it is sometimes difficult to catch the other.

In my recent operations I have taken out one tonsil, have then turned the child over, put the gag in the other side of the mouth and removed the other gland in the same way as the first. There is very little bleeding, and as the child is turned upon its face none of the blood can run down into the trachea. After the operation a spray or gargle containing about five grains of carbolic acid to the ounce of water, should be used every two hours when the child is awake, until the throat has nearly healed. If pain is complained of, troches of althea may be used freely, or a small amount of deodorized tincture of opium may be added to the local application.

There are some cases of chronic tonsillitis in which the follicles are mainly involved and the glandular tissue is not sufficiently hypertrophied to require removal, but in which the diseased follicles are constantly filling with secretions which give the patient more or less discomfort and sometimes actual pain, and often cause an offensive breath. This is frequently a source of much alarm to the patient. The treatment usually recommended for this condition consists mainly in the application of caustics. Most authors recommend that all the secretions be carefully squeezed out of the crypts and then either chromic acid or nitrate of silver be applied, fused on a small probe. Applications should be made to only two or three follicles on each side at each sitting. This is effectual in some cases; however, there is no method so satisfactory as cauterization by means of the galvano-cautery. Some laryngologists recommend that the secretions be carefully squeezed out of the crypts before using the galvano-cautery, but it is entirely unnecessary. I use an electrode, the point of which is about half an inch in length by one-eighth of an inch in breadth, which is tested at the time with a current sufficient to heat it to a white heat in one second. This is passed to the bottom of the crypt and the current turned on until the tissues begin to sizzle and smoke; the current is then shut off, the instrument withdrawn, and the operation is completed. I usually cauterize two or three crypts at each sitting, and only those in which I can see the secretions. Cocaine may first be used to prevent pain, but is not generally needed.

There are some cases where it is impracticable for the physician to use any form of treatment a sufficient number of times. These patients may sometimes be able to use the nitrate of silver themselves, if they are shown how to fuse it upon the end of a probe, and to pass it into the crypt. By persistent treatment in this way a cure may usually be effected.

After the removal of enlarged tonsils there is sometimes considerable hemorrhage. The most approved means for checking it are: holding bits of ice in the mouth and applying ice at the angle of the jaw; holding a sponge firmly upon the stump of the tonsil with a pair of forceps, one blade of the forceps in the mouth, the other outside (the ordinary stone forceps are best adapted to this purpose); compressing the stump of the tonsil with the finger, making counter-pressure with the thumb at the angle of the jaw, and rubbing alum upon the cut surface. Sir Morell Mackenzie recommends a mixture of tannic and gallic acids, two drachms of gallic and six of tannic acid to the ounce of water, which is to be supped slowly, or used as a gargle; this, he claims, will stop the bleeding in most cases. By the use of some one of these means I have always been able to check the hemorrhage, with one exception.

A few cases have been reported in which the hemorrhage has been alarming, in some of which the carotid artery has been tied to stop the bleeding, though with equivocal success. One of these which occurred in the practice of Dr. S. E. Fuller, of Brooklyn, two years ago, an account of which was published in *The American Journal of the Medical Sciences* for May, 1888, was widely quoted both by medical journals and the daily press. In that instance the common carotid artery was finally tied, but bleeding did not cease until after the patient fainted. Dr. D. Bryson Delavan, of New York, has shown that tying the carotid artery has but little effect upon bleeding from the tonsil. He suggests that in cases of bleeding after tonsillotomy, fainting should be induced as soon as possible, and to facilitate this and yet prevent excessive hemorrhage, he recommends that the arms and thighs be ligatured close to the body, the patient kept erect, and the bleeding allowed to go on until fainting occurs.

A patient recently came to my clinic on account of frequent attacks of acute tonsillitis. I found that the glands, excepting when inflamed, were not large enough to be removed; therefore, as an acute inflammation was just coming on, I waited a couple of days and then, before the class, removed the glands with the tonsillitome. The glands at the time were not larger than a small almond. The immediate hemorrhage was not excessive, but at the end of my lecture I found that the patient was still bleeding freely. The patient was left in charge of my assistants, Dr. C. H. Guibor, of Beloit, Kansas; Mr. B. W. Sippey, and Dr. A. R. Wittwer, of Cook County Hospital, by whom all of the ordinary methods which I have enumerated were tried one after the other in this case, besides gargles of turpentine, hot

water, and iced alcohol, but none of them checked the bleeding for more than ten or fifteen minutes, until, finally, the patient fainted, after which the bleeding did not recur.

Many patients will ask if removal of the tonsil will alter the voice? I would answer, it cannot injure the voice, and will usually improve it. There is an impression among the laity that removal of the tonsils will in some way injuriously affect the generative organs. I need only mention it to tell you that it is absurd, and that there is no foundation for the belief.

OPEN-AIR TRAVEL AS A CURER AND PREVENTER OF CONSUMPTION.

As Seen in the History of a New England Family.[1]

BY HENRY I. BOWDITCH, M.D.,
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"For my own part, I intend to hunt twice a week during my stay with Sir Roger; and I shall prescribe the moderate use of this exercise to all my country friends as the best kind of physic for mending a bad and preserving a good one."—*Sir Roger de Coverley*, chapter xiii. p. 101, Goldschmidt, Edinburgh, 1889.

IT is a curious coincidence that, at the same meeting of the Climatological Association, the President should give you some information gleaned from my recorded cases as to the connection of pleurisy with phthisis, and I should present the history of my father, cured, as I believe, of severe phthisical symptoms by a journey in an open chaise, and by persistent daily walking of from five to six miles during the rest of his life. In connection with this I shall endeavor to show that, by the same persistent open-air treatment of his children during their periods of growth, he was able to prevent the occurrence of the same disease in a large number of his descendants, who, in consequence of himself and his wife being tuberculous, and also first cousins, must have been very strongly *predisposed* to it.[2]

I have a record of this journey as kept by my father in 1808, when he was thirty-five years of age. I found it recently, tied up in a bundle of old papers, which had been resting quietly hidden for over half a century. It is a very compact, precisely written statement of that journey, showing, indirectly at least, its benign effects upon him.

It is eminently suggestive to me of the proper treatment of certain cases of phthisis, and in the hope that it will be suggestive to others also, I now lay it before this Society. To some sensitive minds it may seem to be of too private and personal a character to be placed thus freely before any public assembly. I have no such feeling when questions of human health and happiness are involved.

In 1808 my father was undoubtedly threatened with consumption. He had cough, hemoptysis, anorexia, diarrhœa, and general malaise, with fever and great debility. On August 29th of that year, when thus ill, he started, with a friend as his companion and driver, in an open, one-horse chaise for a tour through New England. At that time it will be recollected that there were no cars, and travel was had in one's own carriage or in public coaches holding nine persons. These were driven over turnpikes or private roads. There were hotels, more or less comfortable, at which travellers could sleep and get food in every town. This record lets us, more or less distinctly, into the feelings, physical and mental, of every day of the month during which the journey lasted. A glance at the map[1] will show that the travellers went from Salem, Mass., down into Rhode Island, thence by way of Connecticut up through the hills of western Massachusetts to Albany and Troy, and back through Massachusetts to New Hampshire, Vermont, and Maine, and then to the home from which he started. During the trip he traveled 748 miles, passed through 113 towns and cities, and the time spent in this daily open-air exercise was thirty days. During that time he went through all stages of feeling of mental discouragement and of physical weakness up to a real enjoyment of life.

Allow me to refer briefly to these changes. Starting from Salem (black) with the prominent signs of phthisis, he was so much exhausted, and had hemoptysis after a drive of twenty-five miles to Milton, that the landlord of the hotel advised his friend to take him home to die, as he could not possibly drive to Taunton the next day, as proposed. (I derive this last statement, not from the journal, but from family tradition.) The travellers were both of them plucky, and not only made that next day's journey, but the sick man felt somewhat better at evening, and notes in the latter part of his record

[1] Read before the American Climatological Association, June, 1889.

[2] I am well aware that, since the brilliant discovery by Koch of the bacillus tuberculosis, some writers deny that phthisis *can* be inherited. But surely this opinion I cannot think true. All my medical experience is directly against it. Moreover, we all admit that a certain deterioration of the vital power of the whole, or an abrasion of a part of the body, is necessary for the life and propagation of the bacillus and consequent production of *tubercular* phthisis. Hence, as far as active out-of-door life tends to the production of perfect health in a person or a family, it would seem, *à priori*, that the course pursued by my father, which undoubtedly was of such infinite service in his own case toward the *cure* of phthisis, must have been of great use to his children as a *preventive*, by making them all robust from their earliest years. By so doing he *opposed any tendency* to poor constitutions, impressed on them from their births, which tendencies, if they had not been counteracted from early life, would, I believe, have made his descendants easy recipients of phthisis.

[1] A large map was shown at the meeting marked by circles on the towns where the nights were passed. These circles were entirely black at first, indicating great depression of mind and body, and they became gradually lighter, as the patient got better. Those over the last half of the journey were not only free from any shade, but were surrounded by a red border, indicating the comfortable feeling of returning health.

the condition of the country before arriving at Taunton. His fifty miles since leaving Salem had evidently done no harm, but rather good. Anorexia had gone, as he "dined" (with relish, *apparently*, because he could get nothing else) "on bacon and eggs." Arrived at New Bedford next day, he feels able to visit a friend. He examines a factory. He makes remarks on the inhabitants he met and their employments. Though still having some fever, he feels so much better that much darkness is removed from the circle. Still more refreshed after a night's sleep, and having still less fever, he visits a coal mine recently discovered in the vicinity.

From this time there is almost steady improvement. He visits Newport (109 miles from Salem), admires the harbor, but notices its lack of shipping (to which in Salem with its fleets of ships and their long, wealth-bringing East India voyages he had been long accustomed). At Providence (141 miles from Salem) he finds friends and has pleasant meeting with them. Nothing is said of illness. On the contrary, he has his "Rosinante harnessed" the next day, with the intention of driving *out of his intended route*, in order to visit the cotton factories at Pawtucket Falls. Arriving at Hartford (195 miles from Salem) he is altogether better, finds good fare and a fine hotel. He meets there the judges in their circuit, and has pleasant and profitable conversation with them at the hotel at which they were stopping for the night.

At New Haven (256 miles from Salem, and twelve days of open-air travel) he calls on President Dwight, of Yale College, and regrets that the eminent Prof. Silliman is absent. He visits the library, and finds it wanting in most of the modern English, French, and German scientific works he had been so long acquainted with, and had studied in Salem. At New Haven he makes, for the last time, any allusion to his health, in the following words: "I have a little pain in my breast, but my appetite and general health are good."

After this date, till he arrived home, his record seems like that of a common traveller. He makes no complaints, but describes brightly the places, friends, and others met, exactly as if he were well and travelling for pleasure only.

At Albany he makes an especial and extra journey to Troy with a party of transiently met friends, leaving his chaise for nearly two days in the former city. He found the trip "very pleasant." On return to Albany from Albany to Troy, he had driven 432 miles in nineteen days.

Starting for home, he appears delighted while travelling through a "picturesque" country and meeting at the various hotels intelligent company whose society he was able generally to enjoy.[1] He visits the village of Canaan, and describes in detail what he saw of the Shakers, and heard an extraordinary sermon delivered *at* him, among others, as one of the "outside mankind." I forbear quoting from it. His appetite was becoming ravenous; they would not give him at one tavern, as he says, "half as much as I wanted for my dinner." Finally, he arrived home at Salem, so the record states, "in much better health than he had when starting."

His subsequent course in regard to himself and to his children induces me to believe that the journey, though benefiting him immensely, had not wholly cured him; but it had proved to him the absolute need he had of regular, daily, physical, open-air exercise. Afterward, under walks of one and a half to two miles, taken three times daily during thirty years of life, all pulmonary troubles disappeared. He died in 1838, from carcinoma of the stomach, one lung presenting evidences of an ancient cicatrix at its apex, both being otherwise normal. He was sixty-five years old—*i. e.*, thirty years after the journey.

Having thus experienced, in his own case, the vast benefits resulting from constant, regular exercise out of doors, he apparently determined that his children should be early instructed in the same course. As soon as we were old enough, he required of us daily morning walks down to a certain well-known divine's meeting-house, about three-quarters of a mile, or a mile, from our home. I remember them very well for the tricks played with my brothers on our way down, and for sundry twinges of conscience, felt even at this moment, at the thought that we sometimes decided that the *sight of the "weather-cock* on Dr. Bentley's steeple," though seen more than a quarter of a mile from our proper destination, was near enough to our father's directions!

If any of us, while attending school, were observed to be drooping, or *made the least pretence* even to being not "*exactly well*," he took us from school, and very often sent us to the country to have farm-life and out-of-door "play to our hearts' content." Once he told me to go and play, and to "stay away from study as long as you choose." In fact, he believed heartily in the old Roman maxim, of a "a healthy mind in a healthy body."[1] In consequence of this early instruction, all of his descendants have become thoroughly impressed with the advantages of daily walking, of summer vacations in the country, and of camping out, etc., among the mountains. These habits have been transmitted, I think, to his grandchildren in a stronger form, if possible, than he himself had them.

You will readily agree with me that such habits

[1] This was not always the case, however, for at one town he met one gentleman, "a member of Congress," who was apparently stupid enough. "He scarcely spoke a syllable during the evening."

[1] Mens sana in corpore sano.—Juvenal.

are among the surest guarantees against the prevalence of phthisis in a family. Before detailing the actual result of these habits upon our family, I must state the prospective chances of our escape from the malady. My father married his cousin, who, after long invalidism, died of chronic phthisis in 1834. Certainly a consanguineous union of two consumptives foreboded nothing but evil. They had eight children (born respectively in the years 1805, 1806, 1808, 1809, 1813, 1816, 1819, 1823). Two (born 1809 and 1813—*i. e.*, one and five years after the journey) died, one at eleven and the other at birth. All the others either are now alive, or they arrived at adult life and married and have had children and grandchildren, but not a trace of phthisis has appeared in any of these 93[1] persons.

Now I ask the consideration of this question: To what cause can we attribute this extraordinary immunity from the disease which is generally regarded as showing the influence of heredity and of consanguineous unions more, perhaps, than most other complaints?

If any one can see any other explanation than the influence of this original journey upon the health of one of the great-great-grandparents, conjoined with his wise management of his own health subsequently and his fastening upon his descendants, even to the present day, the virtues of open-air life, I hope he will frankly say so. Truth should be forever our motto, and the man who will convince me of the error of any scientific, or apparently scientific, statement I may utter, and which, if not corrected, may lead others astray, I regard not as an opponent but as my foremost friend.

I submit these facts and thoughts for candid, mature, and *practical consideration* and *use* in the treatment all are called to make of this terrible scourge of all parts of this Union. For my own part I fully believe that many patients now die from want of this open-air treatment. For years I have directed every phthisical patient to walk daily from three to six miles; *never* to stay all day at home unless a *violent storm* be raging. When they are in doubt about going out, owing to "bad weather," I direct them to "*solve the doubt*, not by staying in the house, but *by going out.*"

A cloudy day, or a mild rain, or the coldest weather should not deter them. If the weather be very cold, let them put on respirators before leaving the house and be thoroughly wrapped in proper clothing for the season. I direct them never to stand still and gossip with friends in the open street, as by so doing they are much more liable to get a chill than while walking. Hence, summer and winter alike, my patients usually get plenty of fresh air uncontaminated in a great part, at least, by the previous breathing of it by themselves or by other occupants of the house. This course, I believe, might be pursued in any part of our common country. I am certain that I know of patients who have become well and able to attend to the business of life under this course. May we not also at times send our patients over short distances in open vehicles, instead of thousands of miles off in ill-ventilated cars to an entirely different climate? Have any of us ever sufficiently tried this open-air journeying *at home*, so to speak—that is, in the region of the country where the patient lives, wherever that may be?

Certainly this proposed course has, at least, two sound physiological principles in its favor, viz.: A gentle exercise, for many hours in each day, of the whole frame, and an almost perpetual change of air drawn in with each respiratory act, as occurs while driving in a carriage, open at the front, and in walking. I have no objection to drugs, properly chosen, and I almost always administer them; but if the choice were given me to stay in the house and use medicines, or to live constantly in the open air without them, I should infinitely prefer the latter course in case of my being threatened with pulmonary consumption.

[1] The number of their descendants amounts now (1889) to 8 children, 31 grandchildren, 50 great-grandchildren, 4 great-great-grandchildren—total 93. It may be noted that of the two who were born in 1809 and 1813, one died when eleven years old (1820) and the other at birth (1813), while the writer and reader of this paper was born twenty days *before the journey began.*

NOTES ON THE PREVALENCE OF DIPHTHERIA AT HIGH ALTITUDES.[1]

BY S. H. CHAPMAN, M.D.,
OF NEW HAVEN.

IN August last, during an excursion to Franz-Josephshöhe—9500 feet high—into the heart of the great glacial region called Gross Glockner, in Eastern Austrian Tyrol, my guide related circumstances of an epidemic occurring during the early spring of the preceding year, in his native village of Heiligenblut, which aroused my curiosity.

On my return to the village of Heiligenblut, which is the starting-point of all excursions into that region of snow, I made inquiries of the factota of the village; of the hostess of the inn, who is the chief personage in all Tyrolean villages; the priest; and the telegraph operatress. Their statements verified and amplified those made by my guide.

Upon my return to Lienz, the nearest post and railway station, I called upon the only physician of the town; who, while being the only physician within a radius of thirty miles, is also the military surgeon in charge of the government hospital for the district of Lienz, and, therefore, a personage of authority and influence. He received me with great

[1] Read before the American Climatological Association, June 25, 1889.

cordiality, and gave me an accurate description of his share in the epidemic, and as accurate statistics of the epidemic as was possible to one who had kept no special record of it. He enlarged the field of my search by describing outbreaks in Lienz proper and in a village called Windisch-Matrei. His statements as to the latter were also verified by the hostess of the inn at that place. These data, culled from various sources, I have briefly transcribed, with such descriptions of localities and circumstances as may tend to illuminate the whole.

The architectural and ground plans of Tyrolean houses are the same; the size only varying according to the wealth of the proprietor. This general plan has been perpetuated for hundreds of years, having been found the best to fulfil certain absolutely necessary conditions of living in so rough a climate. A wide entrance hall, ending in a stone staircase leading to the sleeping-rooms above, paved with stone and roofed with heavy arches of stone, is effectually closed in winter by massive doors. The only entrance in winter is through a narrow door let into one of the great panels. On one side of this hall are two entrances, seldom closed by doors; one into the great stone kitchen and the other into the living room; the only rooms occupied except at night. On the other side of the hall is one entrance, always open, leading into a broad and deep stable. Here are kept the horses in summer, while the sheep, goats, and cattle are on the Alps, high up above the village. But with the first heavy fall of snow the cattle are driven down from the hills. The sheep and goats, horses and cows, pass through the narrow entrance, the huge doors are shut, and there they remain throughout the long winter.

The fluids and solids which naturally accumulate with rapidity, are, occasionally, transported, with some slight attempt at cleanliness, to a great stone pit enclosed by the walls of the house, but situated directly to the rear of the stable. Still the cattle stand fetlock deep in mire. The animal heat from so large a number is so great that the temperature in the stables stands steadily at that of June; finding an escape through the always-open door, the heated air warms the hall; mingling with the heat of the kitchen fires, it diffuses itself through the living-room, and escapes up the staircase to the sleeping-rooms above. An effective and economical steam-heating system.

Lienz, 3100 feet above the level of the sea, is a town of a few thousands of inhabitants. It is situated on an extensive plain, surrounded by mountains. A swift-running river passes through it, into which all the drainage, which is altogether on the surface, runs.

Windisch-Matrei, 3700 feet, is a village of a few hundred inhabitants, situated on a spur of a great mountain, overlooking a deep valley. Mountain torrents rush through it; its single street is paved with cobbles.

Heiligenblut, over 5000 feet above the sea, hangs, like a swallow's nest, to the side of a precipitous incline, hundreds of feet above the brawling stream of ice-cold water fed by the great glaciers four thousand feet still higher. The stones of its single narrow and tortuous street are washed by the constant overflow of a torrent which rushes past to meet the stream in the gorge below. The scenery is forbidding. The surface of the ground seems stone, polished smooth by the storms, and glistening dry under the noonday sun.

Heiligenblut has about half the population of Windisch-Matrei. From June to October a telegraph station is located here. For the rest of the year the post-wagon twice a week, except when winter's snows have covered the roads deep; then communication with the outside world entirely ceases, except for some random visitor whom the Government makes its temporary postman. For six weeks, at least, previous to the outbreak of diphtheria, all witnesses alike testified that Heiligenblut had been entirely isolated.

During the summer the journey from Lienz takes more than twelve hours, so that travellers are accustomed to halt over night. For half the distance the road is too narrow for the ordinary carriage, and so steep and dangerous that one prefers to trust to feet rather than wheels. The road to Windisch-Matrei is, however, a good post-road, and by no means so long or hard. Winter closes upon Heiligenblut in September, and does not let go its hold before the middle of May. In fact, throughout the summer, in sheltered nooks on a level with the village, there are still reminders of winter's severity in the shape of banks of snow.

Early in February, 1887, the only child of the richest peasant of the valley, a boy of ten, sickened and died in three days. The symptoms, as related by the peasant, were grim in their simplicity: "The lad was well; all at once he couldn't swallow; his neck was swollen, and his throat very sore; then suddenly he died." There were no other cases of illness until after the first of March—not such a March as we ordinarily have, but a March of blizzards, of Arctic cold and of snow six to eight feet deep on a level. Then, simultaneously, many children were attacked, and died.

At the end of a week of the "plague," as the peasants called it, notwithstanding the danger attending the journey, a messenger was dispatched for the doctor, who, after a toilsome journey of two days, reached the village. The physician pronounced the disease diphtheria of a virulent type. His treatment consisted of insufflation of sulphur, and poultices to the neck.

His treatment was so unsuccessful that the peasants

had recourse to charms, prayers in the church night and day, and to the aid of an aged peasant—a kind of oracle in the village—whose treatment, the peasants averred, saved more lives than did that of the doctor. It consisted of an ointment of sweet cream and powdered gunpowder.

The physician's statistics were—sixty cases, forty-eight deaths. By the end of March the disease had disappeared. The disease was entirely unknown to the oldest inhabitant. The description of the disease by the physician was somewhat meagre—he adding, to the account by the peasant who lost his son, only these facts: The crisis was reached in from two to three days; besides the swelling of the glands and inflammation of the throat, there was often severe hemorrhage from the nose preceding collapse. There was no attempt made to isolate cases.

Early in April—carried in the clothing of a victim of the outbreak—the disease appeared in Windisch-Matrei. This bundle of clothing was taken over the mountain direct to the latter village, by a route that makes one of the most delightful excursions in summer. But the virulence of the poison had become much attenuated—to such a degree that ten cases only occurred, and of these, six died.

From Windisch-Matrei the disease was caried down the valley to Lienz, appearing there in the latter part of April. The statistics of its outbreak there, however, are too obscure to be relied upon, the evidence going to show that but few cases occurred, and that the mortality was less than half.

The physician considered the disease atmospheric, non-contagious, and uninfluenced by treatment of any sort. As an illustration of his theory, he related the following case: In a family of nine children of poor people, occupying two or three rooms only, two children under ten were simultaneously attacked. Treatment was—nothing. One recovered, the other died, and the remaining seven escaped the disease altogether, notwithstanding that the cases were not isolated.

I have ventured to relate these incidents, perhaps less concisely than was necessary, because of the interest attaching to the question of the development of diphtheria at so high and isolated a spot. It seems possible, from the foregoing data, to draw the following conclusions:

That the latent germ was stimulated into active development in the steaming, fermenting, fevered atmosphere of the stable.

That its virulence was rather increased than diminished by the high altitude and by the rarity and low temperature of the air.

That propagation from house to house was not hindered by the passage of the germ through a rarefied air of very low temperature.

That the impulse of the germ became less and less violent as time elapsed after its first appearance.

That the history of this epidemic seems to show that there took place a special culture of the specific microbe, in definite quantity; that all the cases were attacked by the originally developed microbe; but that, under the wearing action of time and atmospheric conditions, its virulence became more and more attenuated until it again passed into a harmless period of existence or became scattered in localities unpropitious for further development.

HOSPITAL NOTES.

JEFFERSON COLLEGE HOSPITAL.

CLINIC OF J. M. DA COSTA, M.D.

(Reported by E. P. HERSHEY, M.D., Clinical Assistant.)

DIABETES INSIPIDUS CURED BY ERGOT.

October 11. H. Y., æt. seven, last March had an attack of mumps; during convalescence jaundice appeared and remained two or three months. Since April 1st he has complained of great thirst, shortness of breath at night, has great difficulty in breathing and he passes large amounts of water, *i. e.*, six quarts in the twenty-four hours. There is no history of malaria. The appetite is variable. Temperature 99.2°. The heart is excited, there is an extended impulse. No increase in percussion dulness; no murmur. The first sound is slightly increased; the second sharp. There is nothing in the heart to throw light on the case. The lungs are normal.

The tongue is slightly coated, particularly toward the back. The skin is extremely dry, and so marked at night that the mother has to wet it. There is no history of an injury. The digestion has been poor for the past four years. At times the bowels are loose, at others constipated. Early in the case there was flatulency, not so now. A thorough examination for sugar failed to reveal its presence. The specific gravity 1002, acid, pale, and no albumin.

Although no sugar is found in the urine in diabetes insipidus, there is a question whether or not there is something which takes its place, as characteristic of this affection as is grape sugar of diabetes mellitus. Inosite is a variety of glucose occurring in the muscular substance of the heart and other organs of the body, and is said to have been found in the urine of this form of polyuria. Should this be established we may be able to get at the cause.

The ordinary diabetic sugar is not present here. The dryness of the skin, the patient once having had itching and extreme thirst, are like saccharine diabetes.

The most common idea as to the cause of this affection is, that it is due to a state of depressed innervation. It is seen in the recovery from low forms of fever. Women who have much mental anxiety, and not necessarily hysterical, have it. To the category of causes, too, are referred blows and injuries to the head, which bring about the affection by disturbing brain centres; and it has been found in lesions irritating the floor of the fourth ventricle.

The prognosis is favorable. Formerly it was very unmanageable, but since the action of certain medicines has been ascertained, there has been decided advancement in the treatment.

The diet is of no great importance. A mixed one is permitted. Meat, green vegetables, etc., most easily digested may be eaten. Regulate but do not restrict the diet. In order to insure digestion, we shall give him liquor pepsini ℥ss to ℥j at each meal. Look for medicine that will contract the vessels of the kidneys. Ergot is the most valuable here. Some years ago I published eight cases cured by this method; since that, nineteen or twenty were cured by it. Give enough ergot and you will get good results. ℞. Ext. ergot f℥ss three times a day. Caution the patient to drink as little as possible. Take small pieces of ice. For dryness of skin rub in vaseline at night. Another remedy has come up, which has already gained so much notoriety in other affections. Antipyrin grs. ij three times a day is supposed to have a great effect in polyuria. Should we fail with ergot we shall try this remedy.

The patient made an entire recovery.

MEDICAL PROGRESS.

Treatment of Diphtheria with Acid Sublimate Solution.—It is to be regretted that the enthusiasm of medical investigators is not more circumspect. Physicians, as a rule, are too apt to endorse a remedy, and claim for it undisputable curative properties when, perhaps, their own experiences have been most meagre. True, the profession as a whole is of a sanguine nature, and not disposed to be over-critical; and, therefore, newly advanced therapeutic measures when even of but doubtful efficacy will always find scores of ardent advocates. The diseases which fall prey to such "new cures" are invariably those whose therapy is still a matter of debate and investigation. Foremost among these is diphtheria, and glaring headings announcing, "A Cure of Diphtheria," stare at us from the pages of the vast majority of journals that pass through our hands. The results of long and careful investigation, and conclusions based upon numerous results and honest conviction are, however, always to be welcomed.

It is now considerably over a year ago that DR. RENNERT, of Frankfort-on-the-Main, first treated a case of diphtheria with local applications of acid sublimate solution. Since then sixty-two cases of this disease have been similarly treated by him. In every instance the treatment was entirely successful, and now Dr. Rennert submits, in the *Berliner klinische Wochenschrift* of August 26th, the results of his labors to the profession.

Rennert's attention was first called to the utility of the addition of acids to disinfectants by Laplace's article on the subject. He then used acid sublimate solution with great success in the treatment of wounds. The primary results obtained by him when first using the solution in diphtheria so typically describe its action that we reproduce a brief account of the cases:

A vigorous, healthy child had, in spite of all his endeavors, just died of diphtheria. When calling a few hours later, the mother complained of dizziness, headache, weakness and heaviness of limbs, and irritation of the throat. Upon the left tonsil was a thick, white diphtheritic membrane, the size of a quarter. Rennert wrapped a pad of cotton around a pair of forceps, and, after soaking it in the acid sublimate solution, wiped off the diphtheritic membrane with it. There was slight bleeding from a few points, and these were again washed over with the solution; likewise, the other tonsil. There was no other treatment. The woman slept well all night, and awoke the next morning cured. This day the maid-servant was reported ill. In her case the disease was far more advanced, both tonsils being covered with diphtheritic membrane. The patches were wiped away with difficulty, owing to their adherence to the mucous membrane, but the same treatment was applied. The patient's fever sank immediately. The remedy was again applied in the evening and on the following morning. On the evening of the second day she was cured.

Encouraged greatly by these most satisfactory results, Rennert proceeded to test the treatment in a number of cases. The choice of cases in which the acid sublimate solution only may be used is restricted to such in which it is possible to remove all the diseased membrane. Where this is impossible, other therapeutic agents should be used in connection with the solution. In one case of diphtheria extensively affecting the nose, a three per cent. solution of boric acid, locally, was used with great success in connection with the sublimate applications. The intensity or nature of the disease, whether croupous or membranous, should not contraindicate its use.

Regarding the technique of the method, the solution used was composed of 1 part sublimate, 5 parts tartaric acid, and 1000 parts water. Laplace's experiments have shown that this formula exerts a far more intense and rapid germicidal action than a simple sublimate solution of the same strength. For its application Rennert uses a wad of cotton about an inch long and half an inch thick when wrapped around a pincette. After soaking the wad in the solution, he proceeds to wipe off the diphtheritic membrane with it. This is frequently not done without considerable difficulty, and the use of three to five cotton wads are necessary for one side. After the membrane has been entirely removed, wounded surfaces will be left which almost invariably bleed slightly. Then the entire pharynx should be swabbed out with a larger cotton wad soaked in the solution. This procedure should be repeated every six or twelve hours. In the majority of cases the patient is free from fever after the second application, but it should be repeated every morning and evening until healing is complete. The results of the treatment have already been referred to; sixty-two cases were treated, and all recovered. It seemed that the disease was invariably speedily aborted. When the malady was so far advanced that it was impossible to reach or remove all the diseased membrane, Rennert did not attempt to remove completely any of it, excepting that which came away quite easily, but repeatedly touched the diseased surface as far as he could reach with the solution. Simultaneously Rennert treated twelve other cases with other remedies; two died, seven very light cases recovered, and two recovered only after the other remedies had been discarded and acid sublimate solution substituted.

The danger of sublimate poisoning during this treatment is absolutely *nil*. Rennert, by careful measurement, found that the usual cotton wad employed soaked up seven minims of the solution, and the larger wads used at the close of each application sixteen minims. As he never used more than ten or twelve wads in one application, therefore scarcely one and a third fluid-drachms, the amount of sublimate was only one-four-

teenth of a grain; and considering that the majority of this was lost through expectoration, poisoning from such a quantity would be impossible. Rennert strongly points out the absolute necessity for a thorough carrying out of the treatment, and the absolute worthlessness of doing it half way.

The Sacral Operation in Gynecology.—The new method of sacral extirpation of the uterus and uterine tumors is gaining ground in Germany. Recently DR. HOCHENEGG has performed it successfully in two cases, which are reported in *Fortschritte der Medicin* of August 15th.

His method of procedure was as follows: In the first case, free access to the pelvis was first gained by dividing the recto-vaginal and respectively the recto-vesical septum. The carcinomatous uterus was so strongly adherent that the extirpation could not be completed according to the usual methods. The superficial incision was curved; the coccygis was extirpated and the right wing of the sacrum resected below the third foramen; the attachments with the rectum then divided, the peritoneum opened, and the uterus drawn forward; the vessels were then isolated, ligated, and cut through; the cervix then cut through, and the extirpation completed per vaginam. The peritoneum was partially sutured and both wounds drained.

In the second case, the extirpation was for a tumor firmly attached to the uterus. The growth was situated on the left side, was as large as a man's fist, cystic, and intra-ligamentous. Here also the coccygis was excised and the left wing of the sacrum partly resected. The rest of the operation was performed with blunt instruments as far as possible. On account of the firm adhesions of the tumor to the uterus, the latter had also to be extirpated from the cervix, and was removed through the sacral wound. The isolated vessels were then ligated, the stump of the cervix sutured with silk. The peritoneal wound was packed with iodoform gauze, and the sacral wound left open. Healing was rapidly effected, but for some time a small fistula remained in the sacral wound.

The advantages of this new method of operating are as follows:

1. It is of superior value in such cases where adhesions or fixation of the uterus render extirpation per vaginam technically impossible.

2. By means of this operation the retro-peritoneal lymphatic glands can also be removed, which fact is of great importance, as they are often found carcinomatous. The prognosis is, therefore, more favorable.

3. The operation is also practicable for small tumors which can neither be extirpated by laparotomy nor per vaginam. Greater control of hemorrhage and drainage is possible. Finally, the danger of ligating the ureters is greatly diminished.

Pyopneumothorax Tuberculosus.—The method of the treatment of pyopneumothorax in consumptives is one of the most important questions of internal therapeutics. On the one hand it is the connecting link between the treatment of pleurisy and its accompanying complications, while, on the other hand, it is directly connected with the therapeusis of phthisis in general.

While the surgical treatment of pleural exudations has, of late, been almost satisfactorily determined, still the study of tuberculous pyopneumothorax has yielded but poor therapeutic results. Senator, Fräntzel, and Leyden have been of the opinion that the treatment should be restricted to the relief of the principal symptoms; from time to time the air and exudation are removed from the pleural cavity by means of aspiration, in order to afford temporary relief to the patient. Otherwise the treatment was merely for the phthisical condition.

After surgical interference the patients almost invariably collapse and die. Some patients indeed, offer primarily, a general favorable condition; but are sure in spite of all care, to succumb sooner or later. Weyl affirms that over one-tenth of phthisical subjects develop pyopneumothorax; of these about twenty-five per cent. are still in a well-nourished condition when attacked. The results of "thoracotomy" have been far from encouraging; the cases which survive the operation for any length of time are very few in number.

For the past year PROFESSOR LEYDEN has been devoting considerable time in the study of this complication. In an address published in the *Berliner klinische Wochenschrift* of August 5th, he tells of six cases of pneumothorax which came under his treatment, three of which were operated upon.

The first of these, who died a few days after the operation, was suffering from sero-pneumothorax. Such cases, he holds, should be excluded from the operation, as but slight relief is afforded thereby, and suppuration continues actively even after emptying the cavity. Potain, of Paris, treats such cases by aspiration of the exudate and injection of a similar quantity of sterilized air. In one case of a patient suffering from pyopneumothorax, Potain, after a year of treatment, not only succeeded in curing the pyopneumothorax but also the tuberculosis. A second case reported by Leyden survived the operation for four months. Autopsy showed advanced phthisis, amyloid in liver, bowels, and kidneys.

The third case still lives, ten months after the operation. The patient is a man aged twenty-seven years; thoracotomy was performed and a quart of pus evacuated. After the operation the patient's condition was most precarious. He could eat nothing and had severe dyspnœa. Strength was, therefore, maintained for several weeks by gavage. Leyden is of the opinion that the importance of alimentation is not sufficiently taken into consideration. In all diseases where the danger is chiefly in a wasting of strength, or consumption of tissue, proper nutrition of the patient is of all importance. The required proportions of albuminates, fats, and carbohydrates, should be acurately determined in order to effect an increase of the weight of the body.

The result of his observations have proved to him that the patient needs a greater amount of nourishment than the healthy subject. The patient should be compelled to eat what he needs and not only what he wants. Dujardin-Beaumetz and Debove have both highly lauded the efficacy of increased alimenation, especially in the therapeusis of phthisis.

To effect the proper nourishment of the patient moral and mechanical force are often necessary. The moral force of the physician's authority is valuable, but the use of mechanical force in the shape of the stomach-pump (gavage) is sometimes unavoidable. The choice of foods is most important, and should be of such a nature that the patient can both digest and retain them. Unwaver-

ing care and untiring zeal are necessary, on the part of the physician, in the accomplishment of this point. The ground gained is gained but very slowly and can be lost again only too easily. Upon these principles Leyden bases the therapy of pyopneumothorax, subsequent to the operation of thoracotomy. The process of healing is very slow, and pus will be discharged for a long time, yet when the strength is thoroughly reëstablished the danger from pneumothorax may safely be regarded as past.

Sexual Asthma.—DR. A. PEYER, in *Wiener med. Wochenschrift* of August 22d, asserts that a large number of cases of asthma are due to a sexual origin, both in males and females. The sexual disturbances exert an influence upon the sympathetic nervous system, and this, in turn, calls forth the asthmatic attack. In many instances this may be occasioned by sexual excitement, or by the sexual act; or, again, by nocturnal pollutions.

Peyer quotes also sixteen cases of sexual diseases which were undoubtedly the cause of asthma. In the male sex, eleven cases were spermatorrhœa; these were accompanied by functional anomalies, pollution, and impotence. In five cases of asthma in the female, Peyer diagnosed one case of uterine fibroid, one case of leucorrhœa, one case of vaginal and cervical catarrh with hyperæsthesia of the vulva, resulting from masturbation, one case of uterine catarrh with induration, and one of chronic endometritis.

Lactose, a New Diuretic.—PROFESSOR GERMAIN SÉE speaks most highly of a new diuretic, lactose, which, he asserts, is of special efficacy in dropsies arising from cardiac diseases.

About three ounces of lactose given in solution with rum or menthol, produce a diuretic action which could not be realized with five quarts of milk. Sée allows the patient to take any desired diet during the treatment with lactose. The remedy is not so applicable in dropsies of a renal origin. In the latter class of cases, it is necessary to recur to caffeine. Neither lactose nor caffeine causes any vascular compression, as do both digitalis and strophanthus. Lactose should be continued for about ten days; it would be then well to stop for a time, but it should again be used when necessary.

Germain Sée speaks in the highest possible terms of the drug, and says that in it we have the only positively trustworthy remedy in cardiac dropsies.

DR. DUJARDIN BEAUMETZ confirms the results obtained by Sée, but also states that a similar diuretic action will be observed to follow the similar use of grape-sugar, or glucose.

The Operation and Prognosis of Extirpation of the Tongue.—In Professor v. Volkmann's clinic, in Halle, two methods of extirpation of the tongue are employed; if the tumor is so situated that it can be drawn forward to the teeth, the simple operation with scissors and knife is employed. DR. F. KRAUSE, in describing the operation in the *Deutsch. med. Wochenschrift*, says: The patient is narcotized in a sitting posture, a wire loop passed through the tongue, and the organ then removed by scissors or knife, as may be found most convenient. Spurting vessels are singly secured as divided. After the hemorrhage has ceased, the wound on the floor of the mouth is sutured as far as possible, or if only a portion of the organ is removed, the tip is bent over to the side and the two raw surfaces are sutured together, so that the tongue is shortened but retains its breadth. Should the growth be so extensive that it cannot be drawn forward to the teeth, or should the floor of the mouth, palate, or tonsils be also implicated, the second method of operation, with division of the lower jaw, is employed. The patient is, as in the first method, narcotized in an almost sitting posture, a wire loop passed through the tongue, the organ being also secured with strong artery forceps; if necessary, the canine or first bicuspid tooth is removed; a skin incision is then made from the angle of the mouth to the level of the larynx, the tissues over the jaw being at the same time divided to the bone; the periosteum is freed from the inner surface of the jaw and a strip of metal is passed beneath it. The jaw is then divided with a very thin-bladed amputation saw, under constant irrigation with boracic solution. Hooks are inserted into the maxillary canal, and the two halves of the jaw drawn asunder. The soft parts are now divided in a direction corresponding with the skin incision, if necessary as deep as the great vessels. By this means the whole of the diseased tissue and implicated glands can be removed. Spurting vessels are tied at once. The anterior faucial pillar is always divided, and a large drainage tube is placed immediately behind it and brought out at the lower part of the skin incision, thus allowing all secretion or possibly ingested fluids to escape. The remaining portion of the tongue is sutured to the mucous membrane if necessary. Tampons of iodoform gauze are employed, and the bone is sutured with strong silver wire. As to after-treatment, the patient is supported in a semi-sitting posture, and fed from a long-spouted glass vessel, and after each meal the mouth is washed with 3 per cent. solution of boracic acid. The mortality in the severer operation (in 35 cases) was 5.7 per cent.; in 56 partial resections of the tongue without division of the jaw, there was no death.

The results, so far as known, of the cases operated on are as follows: Of the 35 cases of total extirpation, with division of the maxilla, 2 died in hospital, one in eight days, the second five weeks after operation (pneumonia), 16 are known to have died with recurrence, 3 are known to be alive, 1 only, operated on 6 years ago, having no recurrence. Of the 56 partial extirpations, 37 have been followed; of these 2 died with metastasis, four and six months respectively after operation, 19 died with recurrence of the tumor—average duration 10½ months, 9 died from other causes, without recurrence, 7 are still living and have no recurrence of the disease. It must be added that in all the cases the clinical diagnosis was confirmed by microscopical examination, and all tumors not carcinomatous are excluded in the above statistics.—*Medical Chronicle*, September, 1889.

Treatment of Warts.—ALTSCHUL recommends the treatment of warts by Unna's method, namely, mercurial ointment, containing five to ten per cent. arsenic. The ointment is spread on linen, and applied over the wart, which gradually softens, and is finally absorbed without leaving any mark. The method is painless. The treatment of warts by arsenical paste is by no means a new one, and its efficacy has been frequently confirmed.—*British Medical Journal*, September 14, 1889.

THE MEDICAL NEWS.

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SATURDAY, SEPTEMBER 28, 1889.

ANTIPYRIN IN DIABETES.

SOMETHING more than two years have elapsed since D. GONNER called attention in the *Correspondenzblatt für Schweize Aerzte*, No. 19, 1887, to antipyrin as a remedy for diabetes. Since then it has received numerous trials, especially at the hands of the French school of physicians, including Huchard, Robin, Dujardin-Beaumetz, Germain Sée, Panas, and others. If the experience of these observers be received, it must be said of antipyrin that, excepting opium, it is the only drug to which a direct and efficient controlling power over glycosuria can be ascribed.

Although the precise position of this remedy in the treatment of diabetes cannot be said to be determined, a number of valuable practical facts may be deduced from the experience of the French physicians, as follows: *First.* It is the milder forms of the disease in which it has been found most efficient. *Second.* It is administered either alone or in combination with sodium bicarbonate, the latter being preferred by Robin. Fifteen grains of antipyrin, combined with twice as much of the alkali, are given four times a day, an hour before or after meals, and this is kept up for from eight to twelve days. Then the treatment is suspended, in order to avoid albuminuria and other toxic effects which excessive administration of antipyrin may produce. This period of intermission is continued until the sugar again returns or increases, say for a week. While the patient is taking the antipyrin a moderate amount of starchy food, even potatoes and bread, it is said, may be taken, to be discontinued again during the intermission, and thus the craving for these foods is supplied. The antipyrin alone is used in the same manner. In the hands of PANAS (*Le Progrès Médical*, April 13, 1889) so small a quantity as forty-five grains caused the entire disappearance of sugar in one case, although it immediately returned when the dose was diminished or the administration ceased. A *third* fact generally acknowledged by those who have had experience with antipyrin is, that it is in no sense a cure for diabetes; simply averting, during its use, the miscarriage of an important variety of food, the hydrocarbons, and thus conserving the energies of the patient. *Finally*, antipyrin should be cautiously used in cases of nephritis, on account of its well-known tendency in large doses to produce albuminuria, although its use should not be altogether interdicted on this account. Whenever, however, in non-albuminuric cases, albumin appears in the urine, it should be discontinued, as it should also so soon as it is found to produce no effect upon the sugar. It is of doubtful efficacy, also, where tuberculosis has occurred in the course of the diabetes, and where, although it diminishes the sugar, the specific gravity of the urine, nevertheless, increases; also in cases where the sugar exceeds three or five ounces per quart. It is to be stated, also, that good effects of antipyrin obtain in the polyuria of diabetes insipidus, as originally announced by Huchard in *Revue gén. de Clinique et de Thérapeutique*, No. 7, 1888.

How does antipyrin act in influencing the glycosuria of diabetes? Very probably through some influence on the medulla oblongata, as suggested by Huchard, who was led to its use in diabetes mellitus by a consideration of its marked effect on other diseases of bulbar origin, as, for example, Graves's disease, its effect as an anodyne, and its effect also observed of converting a diabetes mellitus into a diabetes insipidus. In a word, it must act similarly to opium, and if it produces its effects without the disadvantages of opium, it must prove a valuable acquisition to our armamentaria against diabetes.

THE TREATMENT OF POST-PARTUM HEMORRHAGE.

PROBABLY no subject in obstetrics gave greater scope to the dramatic powers of lecturers on this branch of medicine fifty years ago than post-partum hemorrhage, and the graduate went to the parturient

prepared to "turn out the clots" and grapple with appalling exsanguination.

Increased knowledge of the causes of such hemorrhage and of the physiology of labor, with general improvement in methods and appliances for the conduct of labor, have diminished the frequency and mortality of this complication, and in well-appointed maternities and in the hands of intelligent practitioners death from this cause is rare.

The most frequent cause of bleeding after delivery is failure of the uterus to contract; Credé's method of expressing the placenta, the frequent use of the hot douche, of uterine massage, and ergot generally induce uterine contraction promptly and efficiently. There remain, however, cases in which an abnormality in the contraction of the uterine muscle results in failure to close the uterine sinuses; the means usually employed fail, and a prompt and radical procedure is demanded. An application directly to the interior of the uterus is usually sufficient in these cases. Such may be a hot intra-uterine douche of antiseptic fluid; the injection of vinegar; a bit of ice carried within the uterus, or reflex stimulation of the uterine muscle by the antisepticized hand carried to the fundus.

A more reliable procedure than these, and a permanent check to bleeding, is the use of iodoform gauze as a uterine tampon. BORN and ECKERLEIN (*Centralblatt für Gynäkologie*, Nos. 25 and 26, 1889) report the most prompt and satisfactory results from this treatment. A strip of gauze four inches wide and two or three feet long is carried by the finger or a simple uterine applicator notched like an arrow, to the fundus; usually the presence of a single strip suffices, and the remainder is used to tampon the vagina moderately. Should more than a single length of gauze be easily admitted, the uterine cavity is moderately distended, and an additional strip is used for the vagina. In the absence of iodoform gauze any antiseptic material of similar dimensions may be employed. Such tampons may remain twenty-four or thirty-six hours in position, and may be renewed, with antiseptic douches, whenever required. Arterial bleeding from extensive laceration of the cervix may be promptly checked in this manner.

The value of the iodoform gauze tampon in bleeding from low attachment of the placenta has been clearly shown, and the treatment by this means is an established procedure. There is every reason to urge a similar adoption of the same efficient agent in treating post-partum hemorrhage.

BIOLOGICAL AND CHEMICAL EXAMINATION OF WATER.

WHILE chemical analysis alone is sufficient for accurately determining the quality of water used for most purposes, and is in fact the only method for such determination, its results are not sufficiently comprehensive to enable us to judge positively of the purity of water for dietetic use. Minute living organisms, the pathogenic and saprophytic bacteria, which enter as a factor of supreme importance in deciding the quality of a water from a hygienic standpoint, elude detection by the most delicate processes of chemical investigation. Their presence may be suspected from the determination of impurities derived from sewage, or some other source of pollution, but no reliable judgment can be formed without the aid of bacteriology. On the other hand, the bacterioscopic examination, employed alone, affords important but only partial results. Chemically pure water may contain a large quantity of bacteria, and almost perfect freedom from the latter is not inconsistent with the presence of waste organic matter. In order, therefore, to form a more exact opinion as to the purity of any given sample of water, both the biological and chemical methods of examination should be employed.

Injury to health attributable to impure water is for the most part connected in some way with the presence of microörganisms, and hence the study of the infections is of great moment. Among the infectious diseases which may arise through the use of impure water, Gärtner classes the affections due to the filaria, distoma, amœbæ, etc., but more particularly the diseases caused by bacteria. These disease germs are capable of living for a time in water, and through this medium of infecting the human body.

It is a well-known fact that most natural waters contain some bacteria. They are very abundant in river-water, less so in lake-water, still less in well-water, and least of all in spring-water. Most of these forms are perhaps not positively injurious, but their presence in greater or less quantity may be taken, with some reservation, as a gauge of the relative degree of pollution. The mere number of microörganisms, however, has no necessary or invariable connection with the wholesomeness of a water or the reverse; it is rather the quality or kind of microörganisms that determines this question. Pollution may be derived from such a source as may admit of the possible impregnation of the water with pathogenic germs; such, for example, as

those of typhoid fever. The specific organism may elude detection, but the presence of bacteria in excessive quantity is a sufficiently suspicious circumstance to warrant a sanitary survey of the source of the water and its mode of storage.

While the cultivation test as applied to water analysis has not been practically as successful in isolating pathogenic germs as could be desired, it must be remembered that this mode of investigation is yet in its developmental stage, and that we are gaining knowledge every day. The prospective usefulness of this method of investigation depends on the ability of biologists to distinguish between pathogenic and harmless organisms.

The certain exclusion of all infectious material is the chief object to be attained in establishing the wholesome quality of a water. Now, as many forms of infectious matter are as yet unknown; others exhibit little or no distinguishing peculiarities of growth on the gelatine plate; and as others again, like the typhoid bacillus, present so little that is characteristic that they cannot be distinguished with facility, it would seem that the bacteriological examination, which, for the most part, brings to light only harmless saprophytes, is of little practical value. It must be observed, however, that the filtration process is the only practical means of removing infectious matter from water, and that bacteriological examination is the only means of testing the efficiency of this process. Although we may fail to detect the pathogenic bacteria in drinking-water, we are justified in assuming that a process of filtration which excludes all other forms of bacteria, offers a barrier to the pathogenic forms. Until the method of examination by the culture process was discovered, there was, as Frankland remarks, no available means by which the relative efficiency for the removal of microörganisms of different filtering materials could be estimated, on a quantitative basis. This test is now recognized as being of great practical value, and has been satisfactorily applied in a number of European cities which resort to the plan of purification by filtration as the best means of removing organic impurity.

A good illustration of the importance of the combination of the biological and chemical methods of water examination is presented in the report of the investigation of the water supply of Minneapolis, embodied in the *Transactions of the Board of Health* of that city for the year ending March, 1888, which was conducted independently by Dr. Prudden and Prof. Leeds, with the object of determining the cause of the epidemic of gastro-intestinal disease which prevailed in that city in the winter of 1887 and 1888. Each method of analysis presented important but only partial results, but when combined they supplemented each other's deficiencies, and showed the cause of the disease to be in all probability in the water, which was grossly polluted with sewage and swarming with microörganisms, a teaspoonful of this water being estimated to contain, on an average, 30,000 living bacteria. Dr. Prudden succeeded in isolating, from the contents of the intestines of a fatal case, bacteria which do not belong in the intestinal canal, and which are capable of producing acute gastro-enteritis, with or without fatal results, in rabbits. This fact, studied with others developed by the investigation, points strongly to impure water as the probable origin of the epidemic.

The biological test affords us the possibility of detecting the specific agents of infection, but this result is as yet comparatively restricted. Its special value at present is based upon the fact that the pathogenic bacteria belong to the class of microorganisms which are recognizable, and, as Welch remarks, from the behavior of these forms conclusions may be drawn with regard to the behavior of those of pathogenic origin.

AT a meeting of the Executive Committee of the Congress of American Physicians and Surgeons held in Philadelphia last Saturday, Dr. S. Weir Mitchell was elected President of the next Congress, which will be held in Washington in September, 1891, and Dr. W. H. Carmalt, of New Haven, was elected Secretary, Dr. J. S. Billings, of Washington, Treasurer, Dr. William Pepper, of Philadelphia, Chairman of the Executive Committee, and Dr. S. C. Busey, of Washington, Chairman of the Local Committee of Arrangements.

AT the late meeting of the American Gynecological Society, Dr. Robert P. Harris, of Philadelphia, was elected an Honorary Member of the Society.

AT the Annual Meeting of the American Pediatric Association, held last week, the following were elected officers for the ensuing year: *President*, J. Lewis Smith, of New York; *Vice Presidents*, Arthur V. Meigs, of Philadelphia, and F. Forchheimer, of Cincinnati; *Secretary*, W. D. Booker, of Baltimore; *Recorder*, W. P. Watson, of Jersey City; *Treasurer*,

Charles Warrington Earle, of Chicago; *Member of Council*, L. Emmet Holt, of New York.

THE corner-stone of the new building for the New York Academy of Medicine on West Forty-third Street will be laid next Wednesday, at 4 P.M. The order of exercises includes an invocation by Bishop Potter, an address by Dr. A. Jacobi, remarks by ex-President Cleveland, and the formal laying of the corner-stone by the President of the Academy. Dr. Alfred L. Loomis.

THE first general meeting of the Continental Anglo-American Society will be held at the Grand Hôtel, Paris, on Monday, September 30th. The first annual dinner will take place the same evening at the Grand Hotel. The Honorary Presidents of the Society include the following gentlemen: Sir Spencer Wells, Sir Joseph Lister, Dr. Richard Quain, Prof. Ball, Prof. Brown-Séquard, Dr. Ricord, Dr. J. S. Billings, Dr. Fordyce Barker, and Dr. Weir Mitchell.

THE annual meeting of the American Academy of Medicine will be held at Chicago, Ill., November 13th and 14th.

SCARCELY any heroism of modern times has called forth such universal admiration as the voluntary sacrifice of Father Damien. It is now stated that his follower and successor, Father Conrady, has been stricken with the dread disease.

THE Fifth International Veterinary Congress was held in Paris from the 5th to the 8th of September. Tuberculosis in animals was the principal subject for discussion.

BERLIN has an active Society of Railway Surgeons. At their last meeting, among the subjects discussed were: Practical tests for color-blindness; traumatic neuroses and railway-spine, and others.

REVIEWS.

DISEASES OF WOMEN: A MANUAL OF NON-SURGICAL GYNECOLOGY. By F. H. DAVENPORT, A.B., M.D., Assistant in Gynecology, Harvard Medical School, etc. 12mo., pp. 311. Philadelphia: Lea Brothers & Co., 1889.

THIS manual, its author states, is intended to instruct students in the principles and details of gynecological examinations and treatment, and to help the general practitioner in treating average cases of women's diseases. We believe that this intention has been fulfilled; the indiscriminate laparotomist and extirpator will find little to attract in the volume, but the general practitioner may well avail himself of its lucid and rational modes of treatment, while the student will not find elsewhere more practical instruction in those details of scientific gynecology which are so essential in diagnosis and treatment.

"Methods of examination" are treated and illustrated with most satisfactory fulness. In the treatment of disordered menstruation, the author's mode of using leeches is very efficient; the leech is grasped gently behind the neck by dressing forceps, and held against the cervix, to which it rarely fails to adhere promptly. These valuable agents are neglected because of their inefficient application as generally practised. In fibrous stricture of the os internum, discission under antiseptic precautions is very properly preferred to divulsion, the latter being reserved for more elastic conditions of the tissues.

The chapter upon uterine displacements is especially full and satisfactory; the author is an intelligent and rational advocate of the use of pessaries, and gives an interesting exposition of his methods, including the safe and efficient, but not brilliant, treatment of displacements with adhesions by repeated vaginal tamponade. Purging with salines is not with our author a specific cure for peritonitis, he is quite out of fashion in this, but believes from experience that morphia and quinine, with rest and external applications, limit this disease in the pelvis and result in recovery. The value of electricity in promoting ovulation, in curing ovarian and pelvic neuralgias and promoting absorption, is fully recognized, and will not be disputed.

A useful list of instruments necessary for gynecological practice is appended, and scattered through the book are various instrumental devices of practical value.

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

Fourth Annual Meeting, held at Washington, D. C., September 18, 19, and 20, 1889.

WEDNESDAY, SEPTEMBER 18TH.—MORNING SESSION.

THE Association was called to order at 10 A. M.

THE PRESIDENT, DR. FRANCIS MINOT, of Boston, read an address on

THE PROGRESS OF MEDICINE DURING THE LAST FIFTY YEARS.

The immediate causes of the great advancement of medicine were the growth of physiology and pathology, including bacteriology, and the improvements in clinical and laboratory teaching of the present day, which have led to a better acquaintance with the nature and causes of disease, to a more rational and successful thereapeutics, and to the prevention by means of hygiene of a large number of diseases, including some of the most fatal. These means have been greatly aided by the progress of science in general, and by the conveniences of modern civilization which enable observers from different countries to assemble together for interchange of knowledge and experience. A large share of medical progress is also due

to the dissemination of knowledge by means of well-conducted journals which enable thousands of practitioners who cannot leave their homes to be constantly supplied with the most recent discoveries relating to pathology and the diagnosis and treatment of disease. The organization of this Association is peculiarly adapted to the progress of medical science, representing no one section of our country, but including practitioners from all parts of the United States and Canada, whose experience, knowledge, observation, and ability are brought together for comparison and for mutual instruction.

The President reported the deaths of the following members, Drs. H. D. Schmidt, of New Orleans; John C. Dalton, of New York (honorary member); Robert Palmer Howard, of Montreal, and Edward T. Bruen, of Philadelphia.

DR. C. F. FOLSOM, of Boston, then read a paper on

THE EARLY STAGE OF GENERAL PARALYSIS.

He reported a number of cases illustrating the early stage of the disease in which the motor disturbances were very slight, and might readily be overlooked and escape detection. The striking loss of muscular control or power, generally considered a part of the disease, was not found until a late period of the disease. The mental symptoms consist in impairment of a peculiar quality, often so slight as to be made out with difficulty.

The disease arises most commonly under prolonged strain, particularly when associated with unaccustomed excesses. At least two-thirds of the general paralytics have had syphilis, and the relation of the disease with syphilis is too frequent to be accidental. The disease is, however, not a stage of syphilis, and is not benefited by specific treatment. The prognosis is probably not so hopeless as it is generally considered to be.

The common early treatment is harmful. Foreign travel is injurious. The only hope of at least partial cure or marked amelioration is in entire mental and physical rest.

DR. ROBERT T. EDES, of Washington, reported the case of a man suffering now from pronounced general paralysis, in whom the first symptoms of the disease made their appearance some twenty years ago. If the anatomical view of general paralysis is accepted he did not consider it strange that mental symptoms might precede the motor, depending upon the seat of the lesions.

DR. S. WEIR MITCHELL, of Philadelphia, was sure that certain cases of general paralysis began most markedly with motor trouble, while others began most decisively with mental conditions. In regard to syphilis he agreed with the author, except that he had seen cases due to syphilitic diseease in which cure followed specific treatment. He had also seen cure follow in a small number of cases where the treatment was begun in the early stages, but where the motor disturbances and the mental incapacity were sufficiently marked to render the diagnosis reasonably certain. In all of these cases there had been a total abandonment of all previous pursuits, with absolute mental and physical rest. He agreed with the author that foreign travel was often injurious.

DR. JAMES J. PUTNAM, of Boston, remarked that the fact that syphilis acts in this disease not by producing a direct lesion, but in an indirect manner, justifies us in looking for other causes of degeneration which might act in a similar manner. He asked if the reader had seen any cases in which chronic lead poisoning was the apparent cause of the general paralysis, and related a case in which the imperfect and slow speech, the imperfect handwriting, and the expression of apathy and indifference, suggested a diagnosis of general paralysis. In this case there was, however, a history of drinking of water contaminated with lead, and there were certain local symptoms indicating lead-poisoning.

DR. WILLIAM PEPPER, of Philadelphia, believed that he saw these cases from a different standpoint than that of Dr. Folsom; they came to him as cases of dyspepsia, lithæmic disturbance, and the like, and were under his care for some time before symptoms leading to recognition were developed—sometimes for years before the paretic symptoms appeared. He could not regard syphilis as in any way essential in the causation of general paralysis.

In regard to the early stage of the disease, there was one symptom mentioned by Dr. Folsom, or described by others, as indicating the early stage, which he did not often find in cases of nervous lithæmia. There may be a grouping of these symptoms or a delicacy on the part of the diagnostician which will enable a finer and finer shade of these differences to be recognized, which does constitute a basis of diagnosis.

He thought that general paralysis could be initiated by many disturbing, depressing, or irritating causes, and that in its early stages and slight degrees it was capable not rarely of being entirely cured. If these cases are permitted to go on with neglect of hygiene, and with excesses, sexual, alcoholic, or business, a notable proportion will end with symptoms of general paralysis.

DR. FOLSOM said in regard to lead, that while he had seen cases in which this agent had produced symptoms similar to the initial symptoms of general paralysis, he had not seen a case in which the terminal symptoms of general paralysis had been produced. As illustrating apparent cure after specific treatment, he referred to a case in which the use of large doses of iodide of potassium apparently produced complete recovery, and the patient returned to his previous business. The symptoms after several months reappeared, and have continued steadily to progress. Whether this is the result in all such cases he was unable to say.

DR. JAMES STEWART, of Montreal, then read a paper on

TETANY.

The details of the following case were referred to: The patient, a male, aged forty, has been troubled during the past eight years with regularly recurring attacks of tetany. He served as a soldier during the American civil war. Suffered at that time and subsequently from chronic dysentery and malarial attacks. For upwards of ten years he has been troubled with diarrhœa. Patient is tall, emaciated, and anæmic. The first subjective symptom of his tetany is usually double vision, which is quickly followed by the characteristic contractions of the flexor muscles of the hands. Occasionally the flexors of the forearms and adductors of the arms become spastic, muscles of the face almost constantly suffer, muscles of the lower extremities rarely. The affected muscles are the seat during the attacks of fibrillary twitching. The attacks often last several days (seven to twelve), unless terminated by the very free use of morphia.

The galvanic irritability of the nerves is found to be greatly increased, also the mechanical irritability of both nerve and muscle. Knee-jerks exaggerated during attack, absent in intervals. Œdema of the hands and arms, with herpetic eruptions frequently to be seen after particularly severe attacks. The quantity of urine excreted during attacks is usually normal in amount, and contains urea and indican in great excess. Patient has been under observation for more than three years, and it has been noticed during the past two years that he has been getting gradually dull and apathetic. It takes him a long time to answer questions; he complains of general numbness, his face and lips are swollen; symptoms closely resembling those seen in myxœdema.

Tetany, he said, may be divided into three varieties: 1. Epidemic or "rheumatic" tetany, common in Europe, but extremely rare in America. The course is acute and favorable. 2. Tetany from exhausting causes, as lactation, diarrhœa, etc. Course is chronic and favorable. 3. Tetany from removal of the thyroid glands. Course generally is usually either quickly fatal or chronic and incurable. 4. A form of tetany occurring in cases of dilatation of the stomach. Very fatal. Infantile tetany is excluded from this division, as what is so frequently called tetany in infants is not that disease. No doubt, true tetany may occur in childhood.

Experimental Tetany.—When the thyroid gland is removed from cats, dogs, or monkeys, a condition very similar to the typical tetany of the human subject is observed, viz., fibrillary tremors and intermittent spasmodic contractions. Death usually follows in a week, and no changes can be found to account adequately for it.

The fact that there is a great increase in the electric irritability of the nerves after the removal of the thyroid glands is strong evidence of the similarity of the tetany of man and animals. Of the many forms of muscular contractions seen in man, in none, with perhaps the exception of cholera, do we find any marked increase of the electric irritability of the nerves and muscles.

No pathological changes that in any way can be considered characteristic have been described. All recent observers tend to confirm the conclusion of Schiff, that the tetany following removal of the thyroid gland is directly due to the loss of the gland, and that the thyroid gland in some way has a direct influence over the nutrition of the nervous system. It is difficult to explain how causes so diverse in their operation, as "rheumatic" influences, diarrhœa, pregnancy, lactation, and removal of the thyroid, can induce similar symptoms. It appears probable that impoverishment of the nerve centres is one of the main factors in its production.

DR. JOHN T. CARPENTER, of Pottsville, Pa., then read a paper on

TETANY, AND A NEW THEORY OF ITS PATHOLOGY.

He defined tetany as a nervous disorder, accompanied by tetanic spasm of an intermittent character, which may extend from the extremities to the jaw, and be reproduced during the periods of intermission at will, by pressure on the track of the affected nerve-trunk or over the blood-vessel obstructing the circulation. A historical *résumé* of the disease was given; tetany was regarded not as a special disease, but as a sequel of precedent phenomena only. The affection was regarded as the result of septic absorption. The diminution of cases of tetany coincident with the successful treatment and the prevention of septic poisoning was regarded as an argument in favor of the connection between septicæmia and tetany. Cases illustrating this view were cited. The views previously held in regard to the pathology of tetany were discussed and considered untenable.

DR. FRANCIS P. KINNICUTT, of New York, had seen but two cases of intermittent tetany, both occurring in patients with dilatation of the stomach. In one the dilatation was due to pyloric stricture resulting from cancer. In the other there was non-malignant stricture. In both of these cases the conditions were favorable for absorption of poisonous matter.

DR. F. T. MILES, of Baltimore, reported the case of a woman, aged twenty-two years. She had suffered for six to eight years, from dilatation of the stomach. She had vomited acid matter, but never offensive. She several times had numbness of fingers and toes. She suffered from her first attack of tetany twenty-four hours before her death. In this case the stomach had never been washed out.

DR. A. JACOBI, of New York, had been struck with the stress laid by the readers upon sepsis as the cause of tetany. In one of the cases reported by Dr. Stewart, which he thought was due to absorption of putrid material, the stomach was twisted, and Dr. Jacobi suggested that the intermittent contracture was due to nervous influences resulting from the twisting rather than to absorption. He did not doubt that there were cases in which septic absorption produced such symptoms; but when we recall the fact that the contracture is temporary, we must conclude that the influences giving rise to that attack were also temporary. Many of these cases are, he thought, the result of nervous irritation. In some of the cases reported, he should attribute the condition to anæmia.

DR. JAMES J. PUTNAM, of Boston, remarked that the reported cases of tetany showed such a variety of infectious sources that it seemed hardly probable that they should act in such a similar manner, unless there was something else behind. Two or three things are to be considered: first, the influence of habit. The disease set up by a variety of causes may continue as a result of habit. Secondly, the suggestion that in such cases of disordered action we have to deal with an over-sensitiveness of physiological arrangement is important. In these conditions we have the disordered manifestation of what is really a function, but one which ordinarily we do not recognize, as it has no independent existence. It would seem that in the absence of further knowledge with regard to infection and the manner this infection, arising from various sources, may act, we should insist upon the possibilities of explanation which are presented to us by what we know of the physiology and disordered physiology of the nervous system, in attempting to explain conditions met with in this and similar diseases.

DR. STEWART said, in connection with the influence of peripheral irritation, that in the cases of the dilatation of the stomach where tetany had caused death, the symptoms came on a few minutes after the stomach had been washed out. This would point to irritation rather than decomposition as the active cause in this class of cases. There are many other cases in which infection could not enter.

DR. CARPENTER said, in regard to anæmia as the

cause of tetany, that we should have to go back of the anæmia to the cause that produced it. He knew of no cause that would produce anæmia so surely as septic absorption.

AFTERNOON SESSION.

DR. A. BRAYTON BALL, of New York, read a paper on

THROMBOSIS OF CEREBRAL SINUSES AND VEINS.

He first referred to the influence of the following factors in the production of thrombosis: 1, blood stasis; 2, vessel lesions; and 3, blood changes. The anatomical conditions in the sinuses that best favor thrombosis were described at length. A number of cases of marantic thrombosis of cerebral veins and sinuses in chlorotic girls were reported.

The symptoms were next considered. Much importance has been attached to distention of external veins collateral to the internal veins supposed to be affected, giving rise to hemorrhage and œdema. These signs are frequently absent, and may be due to other conditions. The mobility of the symptoms has been considered of value. In these cases the cerebral symptoms undergo strange alternations not seen usually in other affections. Active delirium is exceptional. The depression continues, but alternates with a certain amount of improvement. Fever is absent at first; and, if present, is to be attributed to complicating conditions. Paralytic symptoms of varying extent are usually present. With the exception of the variation in degree, the paralysis does not differ from paralysis from other causes.

DR. WILLIAM OSLER, of Baltimore, exhibited two specimens illustrating the conditions described by Dr. Ball. The first specimen was one of extensive thrombosis of the lateral sinus, occurring in a man who died from phlegmonous erysipelas of the cheek. There were no special symptoms in that case. The second specimen was from a woman dying of consumption. It was thought that gradually increasing coma and the onset of cerebral symptoms were supposed to be due to basilar meningitis.

DR. A. JACOBI enumerated certain additional aiding causes. The first was a disproportion between the white and red blood-corpuscles. The second cause was the relative absence of muscular tissue in a number of the veins. A third cause was absence of water in the blood, often due to the withholding of sufficient fluid in the diet of patients. The last cause referred to was weakness of the heart. When, in exhaustive diseases, the heart is allowed to become feeble, thrombosis, with all its bad results, must be expected. It is certainly a good therapeutic measure to stimulate and strengthen the heart in every disease that will last long or tends to terminate in exhaustion.

DR. WM. H. WELCH, of Baltimore, said that there is one point of great force in explaining the production of thrombosis; that is, the possibility that there is some form of intoxication analogous to that produced experimentally by various substances, such as the fibrin ferment. Under such circumstances, there is almost instantaneously extensive thrombosis wherever the ferment reaches. Pathologists are aware of the frequency with which thrombi, usually of a mixed character, are found in the cerebral sinuses, particularly the superior longitudinal sinus, in cases that have presented no symptoms during life.

DR. SAMUEL C. BUSEY, of Washington, then read a paper on

THE EFFUSION OF CHYLE AND OF CHYLE-LIKE, MILKY, FATTY FLUIDS INTO SEROUS CAVITIES.

The reported cases of effusion of chyle and milk-like fluids into the pleural and peritoneal cavities, including the doubtful cases, do not exceed 43, and these cases cover a period of one hundred and ninety years. Nevertheless 23 of the cases of effusion of chyle and chyle-like fluid into the abdominal cavity have been observed during the present century, 15 since 1850, and 13 during the last and present decades. The increasing frequency of the occurrence is thus clearly shown.

Effusion into the pleural cavities; chylothorax. Of this, including the doubtful cases, there have been 10 cases reported. In 5 of these the chyle poured directly from the thoracic duct. The diagnosis in these cases can only be made by evacuation and examination of the fluid. The prominent symptoms are dyspnœa and accumulation of fluid in one or both cavities. The prognosis is unfavorable and the treatment expectant.

Effusion into the tunica vaginalis testis. The case of galactocele reported by Vidal (de Cassis) seems to have been the first observation of this class of effusions. In two of the reported cases the patulous orifices of the vessels from which the lymph exuded were found. Since 1885 there have been reported in this country 13 cases in which filaria were found, and 2 of these were cases of lymphocele. It has not been shown, however, that filaria are present in every case of lymphocele. It is conceivable that adenitis, gonorrhœal lymphangitis, or other conditions which obliterate the permeability of neighboring and connecting glands, might cause stasis of lymph and dilatation and rupture of lymph capillaries and plexuses with which the serous membranes are so richly supplied. The opinion of those who have had the best opportunity to study the relation of filaria to disease in general, seems to be that of Sir Joseph Fayrer, that it has been shown that disorders of the lymphatic system are most frequently associated with, if not caused by, the filaria. The recent invaded portions of the subtropical belt of this country by the filaria, and the reports of cases of disease with which the parasite has been so uniformly associated, together with the fact that the mosquito has been proven to be its intermediate host, present considerations of the highest importance to the profession and general public. Some of the cases have been cured by injection of iodine, others have been cured by dissecting back the vessels and tying the bundle *en masse* with a silk ligature.

Chylous and oily ascites. A tabulated statement, arranged chronologically, presenting a condensed summary of the reports of cases of chylous and oily ascites, was given. The number of cases reported was 33. Primary rupture occurred in but 5 cases. Chylous ascites may be the secondary result of a variety of morbid conditions, which directly or remotely obstruct the flow of the chyle through the lacteals, receptaculum, or thoracic duct, impede its exit into the left subclavian vein, or retard the current of blood in the left subclavian vein, right side of the heart, or lesser circulation. The relation of puerperal conditions to the effusion of chyle,

is not susceptible of explanation. In five cases the fluid found in the peritoneal cavity was associated with tuberculosis, and in four it is stated that the peritoneum was more or less studded with tubercle. No perforation or rupture of chyle-conveying vessels was found in any of these cases.

The symptomatology of effusion of chyle into the peritoneal cavity is not sufficiently distinctive to differentiate such cases from ordinary ascites, and a diagnosis is only possible after examination of the evacuated fluid. Of the 33 cases, 19 died, 9 recovered; and in 5 the result is not stated. Of the 22 cases of chylous ascites proper, 12 died, 5 recovered; and in 5 the result is not stated. Meagre and unsatisfactory as are the clinical details of these cases, they point to two conclusions: 1, that a free and unobstructed channel of communication between the venous system and the chyle-conveying vessels is essential to the proper nutrition of the body and preservation of life; 2, that death following partial or complete obliteration of this communication is the result of inanition.

In 17 of the 33 tabulated cases, tapping was practised, and in most of the cases repeated several times. Six of these recovered. In 2 laparotomy was resorted to, with recovery of both patients. One was a case of intact retention cyst, and the other was probably a ruptured cyst. As a medical resource, paracentesis is of questionable value. The treatment is mainly directed to the prolongation of life. The causative condition may in some cases be amenable to medicinal treatment, but in most cases some surgical procedure might offer a prospect of cure. In filarial cases, the treatment applicable to such would be admissible. Sonsina thinks that astringents, such as gallic acid and tincture of the chloride of iron, with rest, tonics, and proper alimentation, are useful. Lancereaux thinks that the parasitic forms of lymphatic disease are curable. He has found mercurial inunction in the region of the affected gland in connection with hydropathy of service. He suggests the injection of a parasiticide into the affected glands for the purpose of destroying the female adult worm,

DR. OSLER said that in ordinary post-mortem work it was not infrequent to meet with varices of the chyle vessels of the mesentery covering the walls of the intestine. Sometimes there are extravasations which may form large chylous cysts.

With reference to chyluria, he was positive that there was a non-parasitic form. He had made thorough examinations in one such case and failed to find filaria. On post-mortem examination, nothing was discovered. Also in a case of lymph scrotum, he had examined the fluid and the blood and had found no embryo. He laid a great deal of stress upon these cases, as it is generally stated that these conditions are always parasitic.

DR. WELCH exhibited a specimen of chyle removed from the abdominal cavity of a boy, twelve years of age. He described the chemical and microscopical characters of the fluid, and dwelt upon the importance of distinguishing between chylous and fatty hydrops.

DR. J. F. A. ADAMS, of Pittsfield, Mass., then spoke of the

SUBSTITUTES FOR OPIUM IN CHRONIC DISEASES.

The disadvantages attending the use of opium are: 1. In an overdose it is a poison. 2. In ordinary doses its benefits are largely offset by various functional derangements. Its use involves the danger of the opium-habit.

Of remedies that may be substituted for opium for the relief of pain, the antipyretics—antipyrine, acetanilide, phenacetine, and exalgine—have well-grounded claims to be regarded as rivals of opium. They are, however, less certain and less prompt, particularly when pain is very violent. Antipyrine in five- to ten-grain doses has been found valuable as an analgesic, particularly in headache, neuralgia, and rheumatism.

Acetanilide he had found less active than antipyrine. He used it in doses of seven or eight grains. He had found it particularly serviceable in lumbago and dysmenorrhœa. In the latter condition, one or two doses have afforded prompt relief.

Salicylic acid and its sodium salt should be included on account of their marked effect in the relief of pain in rheumatism, particularly its acute form.

Substitutes for opium to induce sleep. Paraldehyde is an excellent hypnotic, although rather uncertain. Hydrate of amyl is generally preferable to paraldehyde, being more reliable as well as more agreeable. Sulphonal is more extensively employed than either of the above, and is applicable to all forms of insomnia.

Chronic diarrhœa. It is probable that no remedy has been used in this affection so largely as opium. The effects of this mode of treatment have been far from satisfactory. Recently the author had treated these cases antiseptically with far better results. The remedy chiefly used has been sodium salicylate in five- to ten-grain doses, three or four times a day. He had also used salol with success.

We now have remedies which may be used in place of opium in all chronic affections where formerly this remedy was our chief reliance. For producing sleep and for the treatment of chronic diarrhœa, we have certain hypnotics and antiseptics which are not only as efficient, but so much more satisfactory that we may practically lay aside opium, to be used only on rare occasions. As an analgesic, opium still stands at the head of the list for promptness and certainty, but the antipyretics mentioned are probably capable of replacing it in the majority of chronic cases, and the relief afforded by these remedies is attended with less disturbance of the system than that induced by opium.

DR. G. M. GARLAND, of Boston, referred to the value of the fluid extract of gelsemium as a substitute for opium. In frontal headache it has an admirable effect. It is used also with advantage in difficult and painful menstruation, and in certain forms of neuralgia. As a simple hypnotic, gelsemium answers well in cases of temporary congestion with insomnia and headache. In hysterical conditions this agent will often induce sleep in a short time. The drug is given in doses of five to ten drops every half hour until the desired effect is obtained, or its physiological effect is produced in diplopia and ptosis. These appear sufficiently early to serve as a warning.

DR. I. T. DANA, of Portland, reported two cases of opium-habit occurring in a man and wife. The husband was a young man who had for some time given hypodermic injections of morphia to a patient dying of cancer. He subsequently broke his leg, and remembering the effect of the injections in the case of cancer, he tried them on himself. The result was so exhilarating, and as he "could not see why his wife should not have a little

of the fun," he began giving her the injections, although she was perfectly healthy. In this way the habit was induced, and when admitted to the hospital each one was taking six grains of morphia daily.

DR. D. W. PRENTISS, of Washington, exhibited

A REMARKABLE CASE OF SLOW PULSE, EXTENDING OVER A PERIOD OF NEARLY TWO YEARS.

G. W. P., white, male, carpenter, aged fifty-four years. Has always been healthy. The only illness he remembers is neuralgia of stomach, fourteen years ago. The only injury he ever received was a fall, a distance of fifteen feet and striking on his feet, when nineteen years old. Ten years ago a brick fell upon his head, cutting the scalp, but causing no serious injury. Never had any form of venereal disease. Always temperate in the use of alcohol, but not in the use of tobacco. He has been under the observation of the writer for sixteen years, but had never been attended professionally until present illness.

December 13, 1887, after working some time in a malarial locality, he began to have "weak spells," and several times fainted on lifting heavy weights. Examination showed no well-defined disease. No fever, mind clear, pulse 36. Urine normal. No organic disease of heart discovered. The systole was full and strong; diastole greatly prolonged. Between December 13, 1887, and January 20, 1888, the pulse ranged from 22 to 76. During this time there were frequent attacks of syncope. During one fainting attack he fell down stairs. At another time fell out of a chair, remaining unconscious about a minute. After January 20th, when pulse had reached 76, he had no more fainting spells. In March he resumed work. October 2, 1888, he had a relapse, with the same symptoms as in previous attacks. From this date to April 15, 1889, the pulse ranged from 15 to 44 per minute. The fainting attacks continued throughout this time, occasionally very severe. He improved to a certain extent, but about August 1, 1889, he began to have a return of the old symptoms. During the fainting spells the pulse fell to 12 or 15. Between August 5th and September 18th the pulse ranged between 12 and 88 per minute, and between August 10th and August 15th it did not rise above 14 per minute.

The temperature during this time was between 94.5° and 97°. The patient improved somewhat after August 15th, and September 18th was well enough to present himself for examination before the Association.

The "spells" referred to were described. They come on without warning, often without apparent cause, sometimes after exhaustion. He faints, losing consciousness. They last from a few seconds to half an hour. Breathing gasping and slow. Face and hands first pale, then dark and purplish. There is no pain. He has great confidence in the bromide of ammonium, which he thinks controls the attacks. The treatment of the case from the first has been rest in bed, tonics, stimulants, electricity, and bromide of ammonium, together with supporting diet. The tonics used, strychnine, quinine, and iron, with belladonna. Digitalis was tried, but made him worse. Nitroglycerine seemed to help for five doses, but later caused distress. Convallaria and strophanthus were tried, with like result. The drug which appeared to give the most relief was bromide of ammonium, given in doses of one gramme (fifteen grains) three times a day, and extra doses when paroxysms threatened.

The most interesting question in this case turns upon the pathology. What is the cause of the retarded action of the heart? The causes which may produce slow pulse may be classified as follows:

1. Disease or injury to the nerve centres, producing either irritation of the pneumogastric or paralysis of the sympathetic (accelerator) nerve of the heart.
2. Disease or injury of the pneumogastric nerve increasing its irritability.
3. Disease or injury of the sympathetic nerve of the heart, paralyzing it.
4. Disease of the cardiac ganglia, by which the influence of the pneumogastric preponderates.
5. Diseases of the heart muscle (degeneration) whereby it fails to respond to the normal stimulus.
6. Action of poisons as of lead or tobacco either on nerve endings or on nerve centres.

In this case it is difficult to say to which of these divisions it belongs. There are no symptoms to indicate any form of disease of the nerve centres. There is no evidence of disease of the nerves themselves, nor has any organic disease of the heart been discovered. There is left only the action of certain poisons and the question arises whether or not in some obscure way the conditions may not be due to tobacco poisoning from excessive smoking. Another possibility is malarial poisoning. The attacks first appeared while he was working in a malarial district and in the summer of 1888, he had intermittent fever. These considerations make it probable that there is paralysis of the accelerator nerves and not an irritation of the vagus. The symptoms are due solely to defective circulation.

In many of the cases collected in connection with this report, the pathological appearances were a result of the slow pulse rather than a cause.

Abstracts were given of 55 cases of slow pulse of which the following is a brief analysis as to causes: fracture or dislocation of cervical vertebra, 9 cases; disease of brain, 9 cases; cerebral syphilis, 2 cases; sunstroke, 1 case; ossification of aortic valve and coronary arteries, 2 cases; starvation, exhaustion, loss of rest, convalescence, 3 cases; epilepsy and epileptoid disease, 9 cases; heart disease, 6 cases; lead-poisoning, poisoning by salt fish, pernicious fever, 3 cases; nervous shock, cholera morbus, 2 cases, and not stated, 9 cases.

SEPTEMBER 19TH—MORNING SESSION.

DR. FREDERICK P. HENRY, of Philadelphia, opened a discussion on the

RELATION BETWEEN CHLOROSIS, SIMPLE ANÆMIA, AND PERNICIOUS ANÆMIA.

He said the subject might be treated under three heads:

1. Are they separate diseases?
2. Are they of kindred nature?
3. Are they different stages of one affection?

Pernicious anæmia was first considered, because the determination of its status is of fundamental importance. It is admitted by all that the clinical features of this disease are common to a number of affections, especially cancer and atrophy of gastric glands; but those who argue most forcibly in favor of its independent nature

exclude from the category of pernicious anæmia all cases in which an anatomical lesion of any organ is found. This appears to him unscientific, for an independent disease is one which rests upon a constant anatomical basis or is invariably produced by the same specific agent. Hunter has endeavored to establish pernicious anæmia as an independent disease by the demonstration of an excess of iron in the liver in cases of that affection. He regards this as the essential anatomical feature of pernicious anæmia. The work of Hunter is of great value, and certainly demonstrates the existence of an excessive hemolysis in that disease. In the speaker's opinion, however, this excessive hemolysis is a consequence of defective hemogenesis, for certain facts show the red corpuscles of pernicious anæmia to be abnormally weak and perishable. Chlorosis is universally admitted to be due to defective hemogenesis, and, therefore, he regards it and pernicious anæmia as closely related affections. Transitions from the one affection to the other have also been observed by himself and others.

His conclusions were: (1) That pernicious anæmia is a process, not a disease; (2) that it is closely related to chlorosis; (3) that it may be the terminal stage of other diseases, and especially of cancer of the stomach and atrophy of the gastric glands.

Leucocythemia and Hodgkin's disease, in that they are always associated with lesions of the blood-making organs—spleen, lymph-glands, bone-marrow, etc.—are independent diseases, or, rather, different stages of the same disease, for several cases are recorded in which an undoubted transition from one to the other has been observed.

DR. F. FORCHHEIMER, of Cincinnati, then spoke as co-referee on the same subject. He first referred to the confusion which existed in regard to the definition of the two diseases. Immermann states that we are justified in regarding anæmia as that condition in which there is a diminution of red corpuscles as well as the albumins of the plasma in the blood (hypalbuminosis). Strümpell considers that "the essential element in anæmia is, therefore, a diminution in the number of red corpuscles or so-called oligocythæmia," and states further, that oligocythæmia is not invariably accompanied by a diminution in the amount of serum-albumin (by which he means plasma-hypalbuminosis)." Going on it is found that anæmia or oligæmia vera really means a diminution of the whole quantity of the blood and that this condition can be divided into hydræmia, oligocythæmia, oligæmia sicca and oligæmia hypalbuminosa. We have three representative definitions: the one broad and general, including a diminution of any one or all of the constituents of the blood; a second, in which hypalbuminosis and oligocythæmia are the principal if not the only factors; and a third, which makes oligocythæmia alone the characteristic feature. From a purely practical standpoint the latter seems the best.

The same confusion in regard to definition is met with in a consideration of chlorosis. Duncan (1867) was, however, probably the first to make the distinctive feature, oligochromæmia characteristic for chlorosis—that is, in chlorosis we find the individual red corpuscle deficient in hæmoglobin. Unfortunately for this definition, the term chlorosis is to be looked upon as an essentially clinical one; it is not going too far to state that by far the great majority of reported cases of chlorosis are not chlorosis at all. Another difficulty is that both oligocythæmia and oligochromæmia may occur in the same individual, so that the term chloranæmia is justified by observation of existing conditions. It is more than probable that anæmia is a forerunner of chlorosis in a great many instances, and possibly a number of cases occur in which there is a combination of both conditions.

Almost every cause put down for anæmiâ will hold good for chlorosis. Sex, age, a peculiar composition of the blood, and certain vascular anomalies are held to be especially characteristic for chlorosis. The two latter are the only ones to be found in chlorosis. The process of sexual development is looked to as the time of most common occurrence of chlorosis. This age also produces a great number of cases of anæmia; but children and old people are subject to anæmia and practically excluded from chlorosis. The greater number of cases occur between the ages of fifteen and twenty-five years, decidedly after the time of first menstruation. Furthermore, an anæmic constitution is a strong predisposing cause for chlorosis.

The clinical characteristic of chlorosis lies in the peculiar changes in the blood. In anæmia the red corpuscles as well as the albumins of the plasma are reduced in quantity and frequently there is production of a greater number of smaller corpuscles (microcytes). As a result of the reduction of the number of red corpuscles the hæmoglobin is correspondingly reduced in quantity. In pure chlorosis the number of red corpuscles is not diminished and a tendency to the production of larger red corpuscles (megalocytes) is especially well marked. These changes are, however, not sufficiently characteristic to establish a diagnosis. It is also found that the amount of hæmoglobin in each corpuscle is diminished. It has been said that in anæmia there is always hypalbuminosis, while in chlorosis this is absent, but this has not yet been positively proven.

One respect in which chlorosis is said to differ materially, if not absolutely, from anæmia, consists in the pathological changes, first described by Virchow. These are narrowing of the lumen of the cortex and larger arteries as well as thinning of their walls. The heart is sometimes small, sometimes hypertrophied. This view would permit us to state that chlorosis is always congenital, in some cases latent for years, while anæmia in most cases is acquired. Many objections have been urged against this view.

The relation of the symptoms of anæmia to chlorosis depends upon the condition of the blood and the anatomical sub-strata. Given a case of anæmia in which there is only a reduction of hæmoglobin as a result of oligocythæmia and a case of chlorosis in which there is a reduction of hæmoglobin as a result of oligochromæmia, and metabolism in both these cases will be approximately the same; but if in anæmia we have oligocythæmia as well as hypalbuminosis, which is said to coëxist in the majority of cases, the metabolism must be different from that of a pure case of oligocythæmia. As a result of reduction of hæmoglobin there is simple reduction in the process of oxidation; at the same time the waste products are carried off and sufficient albuminous food is carried to the tissues by the plasma of the blood which is unchanged. Hypalbuminosis and oligocythæmia produce an entirely different result. We have

the same factor, suboxidation, but we have in addition deficiency of supply. In mild cases of anæmia, there is produced a loss of weight; in severe cases the condition called marasmus. In chlorosis very little, if any, loss of weight occurs; very frequently the opposite condition is brought about by too good supply and by the presence of too much CO_2, preventing decomposition of fats. When anæmia is associated with chlorosis, we have a very unfortunate combination, especially if there is a great amount of hypalbuminosis.

Unless we believe that the anatomical lesions of Virchow belong to chlorosis, there exists no difference between the symptoms of chlorosis and anæmia.

The therapeutic relations of the two diseases must be considered. While the indiscriminate use of iron in anæmia must be deprecated, yet, upon the whole, iron is just as much looked upon as a specific in anæmia as in chlorosis. Where, in anæmia, we try to remove the cause and institute causal treatment, we are satisfied in chlorosis in removing that symptom which is the essential of that disease. It has been repeatedly demonstrated that the removal of this essential symptom is followed temporarily by complete recovery. Whereas, in anæmia, treatment is followed by complete recovery or complete failure, iron in chlorosis will always result in amelioration, even if the tendency to relapse cannot be removed. There are few cases of chlorosis, even those with the lesions of Virchow, that are not benefited by the administration of iron in sufficient quantity. In a great many cases of anæmia, the use of iron will be followed by negative results.

DR. OSLER took issue with Dr. Henry in regard to chlorosis. He held that chlorosis is absolutely distinct from pernicious anæmia, and for the following reasons: 1. The sex. He had never seen chlorosis in the male. 2. The pathological conditions. He regarded the hyperplasia of the heart and great vessels as a specific anatomical distinction in a certain number of cases. 3. The character of the blood. He considered the diminution of the percentage of hæmaglobin a distinctive feature of chlorosis. 4. Curability. Although, in chlorosis, there is a tendency to relapse, each given attack can be cured, if sufficiently large doses of iron are employed.

DR. KINNICUTT agreed as to the lack of relation between chlorosis and pernicious anæmia. He had never seen true chlorosis in the male. All his cases of pernicious anæmia, on the other hand, with one or two exceptions, had occurred in males. He agreed with Dr. Henry in regard to the relation between Hodgkin's disease and true leucæmia. He related a case which came under his observation with typical symptoms of Hodgkin's disease. At this time the proportion of white corpuscles to red was normal. The spleen and liver gradually enlarged, and two years later, at the time of the patient's death, there was one white corpuscle to five or six red.

DR. W. W. JOHNSTON, of Washington, thought that a study of certain anæmias, which are met with in women, will throw light upon the association of anæmia with diseases of the intestinal glands and gastric tubules. The explanation of the chronic anæmias of parturition is probably the continued pressure upon the intestinal tube, causing a long starvation, lasting nearly a year. This seems to produce an actual organic change in the intestinal glands. Several illustrative cases were cited.

DR. PEPPER agreed with Dr. Osler in regard to the relation between true anæmia and chlorosis and progressive pernicious anæmia so-called. He was not prepared to admit the analogy between true chlorosis and progressive pernicious anæmia. The conditions of the blood are widely antagonistic in these two affections. The clinical differences are also very marked. In the present state of knowledge it is probably wiser to consider essential anæmia as an independent affection.

DR. HENRY thought that the definition of chlorosis, given by Dr. Osler, could not be maintained—that is, that there is always a diminution of hæmoglobin with a nearly normal number of red corpuscles. The arguments that he had advanced were based entirely upon personal observation. While if chlorosis is readily relieved by treatment in the early stages, yet, if it is neglected, the chlorosis may become more intense, and may present the appearances of pernicious anæmia.

DR. S. WEIR MITCHELL then spoke on the

SUBJECTIVE FALSE SENSATION OF COLD CONSIDERED AS A SYMPTOM.

He had met with many cases where a feeling of cold is complained of in members which do not present any objective changes in temperature. These may be placed in three classes: 1. Those due to a central cause. 2. Those due to neuritis. 3. Those whose origin is at present inexplicable, or due to hysteria. A number of cases exhibiting this symptom to an extreme degree were reported. In the first case, a marked sensation of cold, involving the left side of the body, followed an injury to the head. Three or four cases were referred to, coming in the second class. The sensation of cold involved the posterior part of the legs, the back, or buttocks. In all these cases there was either neuritis at the time, or it developed subsequently. When this symptom is noted neuritis may be expected. Two cases belonging to the third group were described. One was an elderly individual with no signs of hysteria; the other was a case of a young woman with marked hysterical symptoms.

DR. PUTNAM had frequently seen the coldness spoken of in chronic spinal disease and in neuritis; and described such a case in a man with chronic sensory neuritis.

DR. MILES regarded this sensation of coldness as a very impotent symptom of neuritis, and reported a case associated with acute neuritis of the ulnar nerves.

DR. G. M. GARLAND, of Boston, then read a paper on

GASTRIC NEURASTHENIA.

He first reviewed Leube's observation on dyspepsia nervosa, and presented a tabular statement of the gastric neuroses.

A case of anorexia nervosa occurring in a woman, sixty-three years of age, was reported. The woman was of feeble constitution. She digested her food without consciousness of the process, and her bodily functions were practically normal in every way except that she suffered from anorexia.

Three cases of vomitus nervosus were then reported:

Case I.—Miss S. began at the age of two years to have sudden attacks of vomiting. These occurred at irregular intervals until the time of her death. The attacks lasted twenty-four hours, and it required a week for the child to recover her strength. At the age of twenty, she began to have excessive muscular twitchings with the attacks. Two years later she began to have

severe headaches. These gradually merged into one steady ache. January 1, 1885, the author saw the patient suffering from intense headache and slight twitching of arms and legs. Vomiting appeared the next day, causing intense burning of the throat from the intensely acid character of the matters vomited. After four days she gradually improved and entirely recovered. November 12, 1884, the patient was again seized with headache. November 15th, vomiting and twitching began. She gradually improved until December 2d, when all the symptoms returned and continued until her death, December 13th. Urine was normal until a few days before death, when it contained a trace of albumin but no casts. At the autopsy no marked organic change was found in any part of the body.

Case II.—Miss. S., twenty-two years old, first seen September 19, 1888. She was in bed with headache, poor appetite, constipation, and weakness. Pulse, temperature, and urine normal. Some nausea. Vomiting appeared in a few days. She was fed exclusively by the rectum for three weeks, but the vomiting persisted, and there was severe burning along the entire œsophagus. At times the urine was scanty, but never contained albumin. She gradually improved, but is not as strong as before her illness.

Case III.—Miss D., æt. forty-three years, had been subject to bilious headaches. During the summer of 1888, she had a severe attack of vomiting, and she was very ill for several weeks. During the following September, as a result of anxiety, her appetite left her and the nausea returned. She, however, did not vomit.

The conclusions drawn from the above cases were: 1. All the women have been of dark complexion. 2. They have not been of the so-called hysterical temperament. 3. Feeding by the mouth was abandoned in every case, and rectal enemata were necessary. 4. None of the drugs usually potent in soothing a nauseated stomach were of any avail. Morphia subcutaneously was the only remedy that was of benefit. 5. The vomitus caused great discomfort along the throat, and in one case caused severe glossitis. In connection with the hyperacidity, he referred to certain cases of acid vomiting described by Rossbach, and designated nervose gastroxynosis. The acidity of these cases depends upon excessive secretion of hydrochloric acid, and is independent of the presence of food in the stomach.

DR. MITCHELL said that in all cases of neurasthenia where there are great complaints of gastric and intestinal difficulty, the presence of hypochondriacal conditions must constantly be considered. It is rarer for grave cases of neurasthenia to present themselves without some abdominal symptoms. In regard to anorexia nervosa, he thought that in the majority of cases a background of hysteria would be found. It is suspicious that this condition is never seen in men.

DR. PEPPER asked in what respects other than the invariable and extreme acidity of the matters vomited, these cases differ from those that have been described under the head of cyclic, acid, and recurrent vomiting. He had seen many such cases, and some like the fatal case reported. In some of the cases the vomited matters were extremely acid. He had had these matters examined chemically with the hope of finding some leucomaine, but so far with negative results. In regard to treatment, the only remedy that had been of benefit was antipyrine.

AFTERNOON SESSION.

DR. JOHN H. MUSSER, of Philadelphia, read a paper on

PRIMARY CANCER OF THE GALL-BLADDER AND DUCTS.

After describing two cases of this affection that had come under his observation, he reviewed the cases that had been reported, and presented the following conclusions: Primary cancer of the gall-bladder is not so rare as is generally believed. It occurs in the female nearly three times as often as in the male. A large number (57 per cent.) of the cases occur under the age of sixty. Gall-stones are an exciting cause, especially in persons predisposed to the affection. The organ is generally not much enlarged, save as the result of secondary processes. Metastasis is not widespread. By continuity of structure neighboring organs are involved. Adhesions to adjacent organs with ulceration and perforation are not uncommon. Pain, jaundice, and the presence of a tumor are the most common phenomena. With them are associated much cachexia, vomiting, constipation, diarrhœa, and ascites. Pain was present in 62 per cent. of the cases, at first ill-defined, then becoming localized to the right hypochondrium, and lancinating in character. Jaundice was present in 69 per cent., gradually increasing in degree. In some cases, however, it was intermittent. Tumor was noted in 63 per cent. The tumor was hard, firm, painful and generally movable with respiration. The progress of the disease is always continuous. Some extraordinary cases are reported in which there was temporary cessation in the progress of the disease. Death results from exhaustion; frequently from peritonitis; in some cases from metastasis to other organs; in some from biliary obstruction; in eight cases death was due to cholæmia. The duration of the disease is short, the average being six and two-thirds months. The progress is rapid after complete occlusion of the biliary passages or evidence of inflammation of the biliary passages has developed.

DR. HENRY F. FORMAD, of Philadelphia, read a paper on

THE ANATOMICAL AND PHYSIOLOGICAL RELATIONS OF LESIONS OF THE HEART AND KIDNEYS,

which was based upon the post-mortem study of 300 cases observed in public and private practice.

DR. P. G. ROBINSON, of St. Louis, then read a paper on

THE CONTAGIUM OF DIPHTHERIA.

Diphtheria, he said, is an acute infectious disease, doubtless due to a living [illegible]n (microbe) the exact identity of which cannot yet be regarded as settled. Primarily a local affection, the system becomes secondarily and generally infected through absorption of a poison generated at the primary and localized seat of inoculation. The modes of infection are numerous, the contagium being directly transferred by contact, in a dry state through the air for limited distances, in foul clothing, in polluted food and drink, milk probably being a prolific source of infection.

While, strictly speaking, diphtheria can hardly be called a filth-disease, since it prevails often to a very limited extent in those localities whose hygienic surroundings are apparently the worst, yet certain kinds of

filthy accumulations, as the manure of animals, notably the refuse from cowsheds and dairies, seems to furnish the most favorable conditions for the culture of this particular germ.

SEPTEMBER 20TH—EXECUTIVE SESSION.

The following were elected

OFFICERS FOR THE ENSUING YEAR.

President.—Samuel C. Busey, of Washington.

Vice-Presidents.—William Pepper, of Philadelphia, and Henry M. Lyman, of Chicago.

Recorder.—I. Minis Hays, of Philadelphia.

Secretary.—Henry Hun, of Albany.

Treasurer.—W. W. Johnston, of Washington.

Member of Council.—G. Baumgarten, of St. Louis.

Representative on Executive Committee of Congress of American Physicians and Surgeons.—William Pepper, of Philadelphia.

The following were

ELECTED TO MEMBERSHIP.

William G. Thompson, William H. Thomson, and J. West Roosevelt, of New York; Charles Carey and Charles G. Stockton, of Buffalo; Victor C. Vaughan and Heneage Gibbes, of Ann Arbor; Charles W. Purdy, of Chicago; Starling Loving, of Columbus, O.; W. H. Geddings, of Aiken, S. C.; William C. Dabney, of Charlottesville, Va.; B. F. Westbrook, of Brooklyn; and Henry P. Walcott, of Cambridge, Mass.

The date of the next meeting was directed to be fixed by the Council, between May 20 and June 15, 1890.

DR. JAMES J. PUTNAM, of Boston, then read

A SUPPLEMENTARY INQUIRY INTO THE FREQUENCY WITH WHICH LEAD IS FOUND IN THE URINE.

The paper embodied further researches as to the frequency with which traces of lead are found in the urine of persons in good health, or not presenting the classical symptoms of lead-poisoning; and discussed the propriety of enlarging our clinical conception of that disease. A table was shown in which the results of the present investigation were combined with those reported two years ago, which may be summarized as follows: The urines of 68 persons, either presenting no symptoms (healthy medical students), or only symptoms of specific or local disease (phthisis, pleurisy, local injuries, etc.), were found by Dr. A. M. Comey and Dr. C. P. Worcester to contain lead in the proportion of about 17 per cent.; while those of another group of 125 persons, presenting various symptoms of disease, such as it was thought might possibly be due in part to lead-poisoning, contained lead in the proportion of 50 per cent. The largest sub-group of this latter class embraced 36 cases, not strictly homogeneous, but made up of chronic or subchronic affections of the spinal cord and peripheral nerves. One (typical) fatal case of this sub-group was analyzed at some length, and the results of the microscopic examination of the spinal cord and nerves were reported upon. The case was that of a carriage-painter, who suffered for some years with progressive anæmia and general emaciation, and for the two years preceding his death with weakness, paræsthesia, and impairment of sensibility with exaggerated tendon reflexes and extensor spasm, increasing, finally, to complete paraplegia. Lead had been found in the urine three times, but the patient had never presented "a blue line, characteristic of paralysis, encephalopathic symptoms, or colic, though the bowels had been obstinately constipated for years. The morbid changes found after death, besides the signs of general anæmia, were those of combined antero-posterior and lateral sclerosis of the cord, on which, at the last, a subacute process of diffuse destructive softening had engrafted itself."

This latter process, which was characterized by the presence of a dense infiltration of granule-cells, and by a breaking down of the nerve tubes, so as to form round or oval cavities, such as have often been described, extended the length of the cord occupying the position of the sclerosed system tracts and the adjoining tissues. The nerve-roots were affected, though to a less degree than the cord; the posterior much more than the anterior. The acute process was at its height in the dorsal region. The gray matter was also affected, apparently in proportion to the severity of the secondary acute change—*i. e.*, most severely in the dorsal region—the smaller arteries were here and there thickened, the peripheral nerves were degenerated, but only to a moderate degree.

It was not assumed that these changes in the cord were due to lead as a specific poison, though, at the same time, the evidence is that such myelitic changes as lead does set up are diffuse in character, and not coördinated with the typical peripheral nerve degeneration.

It was, however, thought more probable, in view of the circumstances under which such pathological processes had been seen in other cases, that the lead acted, if at all, by inducing a general and—through the thickening of the vessels—a local anæmia, thus intensifying the effects of other influences, of which one might be an hereditary tendency.

Another case was cited to show that lead in drinking-water may cause outbreaks of acute indigestion in children, while other children, exposed to the same influences, may be wholly unaffected.

A number of observations made on Boston drinking-water by Dr. E. M. Greene were reported, showing the frequency with which lead is present, and the length of time required to rid a pipe wholly of its presence.

DR. HAROLD C. ERNST, of Jamaica Plain, Mass., then read a paper, entitled

HOW FAR MAY A COW BE TUBERCULOUS BEFORE THE MILK BECOMES DANGEROUS AS A FOOD SUPPLY.

The observations which he reported were made at the instance of the Massachusetts Society for the Promotion of Agriculture. The surroundings of the animals used were prepared in the most careful manner; 114 samples of milk were examined for the bacillus. These were obtained from 36 cows suffering with tuberculosis of some organ other than the udder; 17 samples were found to contain tubercle bacilli. These 17 specimens came from 10 cows. The cream was found to contain bacilli as often as the milk. The bacilli were present with a fair degree of constancy.

Well animals were then inoculated with the result of inducing the disease in 50 per cent. of the cases treated. Feeding experiments were also made, with the result of inducing the disease in a number of calves and young pigs. The following conclusions were presented: 1, and emphatically, that milk from cows affected with tubercu-

losis in any part of the body may contain the virus of the disease; 2, that the virus is present, whether there is disease of the udder or not; 3, that there is no ground for the assertion that there must be a lesion of the udder before the milk can contain the infection of tuberculosis; 4, that, on the contrary, the bacilli of tuberculosis are present and active in a very large proportion of cases in the milk of cows affected with tuberculosis, but with no discoverable lesion of the udder.

DR. E. L. TRUDEAU, of Saranac Lake, New York, then read a paper on

HOT-AIR INHALATIONS IN PULMONARY TUBERCULOSIS.

(See page 337.)

Adjourned.

CORRESPONDENCE.

"OIL OF CEDAR."

To the Editor of THE MEDICAL NEWS,

SIR: My attention has been accidentally called to "oil of cedar" by a death in the practice of a professional friend. He tells me that about an ounce was taken with suicidal intent. Text-books are almost silent on the subject, and I find but few articles in the journals. The articles seen are conflicting. A partial explanation of the conflicting accounts I find in the fact that two or three entirely different articles are sold under the same name. Two of these are manufactured, the one from the tops and the other from the wood of the *Juniperus Virginiana* or red cedar. The other is made from the *Thuja occidentalis*, sometimes called the white cedar or arbor vitæ.

"Oil of cedar" is to be found in almost every drug-store, and is frequently used as a vermifuge. It is also used in liniments, as an abortifacient and as an emmenagogue. I find here that the Thuja oil is the one most commonly kept. In one store there were two specimens. The one was labelled "Oil of Cedar, Red, Pure," which, I was informed, was the oil of red cedar, and when first received was red in color, but had become white. This was clearly *not* the oil of red cedar, but the Thuja article, judging from the odor. The other bottle was marked "Oil of Cedar, Pure," and I was told that this was the white cedar oil. I could in that detect not the slightest odor of the Thuja.

It is my purpose to make some investigations as to the oils to determine their physiological action. I will, therefore, be greatly obliged to any members of the profession who may aid me by giving me therapeutical or toxicological notes of cases. Such writers will receive due credit; they will please let me know which of the oils was used, so far as possible.

HENRY BIXBY HEMENWAY.

524 S. PARK ST., KALAMAZOO, MICH.,
September 21, 1889.

NEWS ITEMS.

The Mortality of Foreign Cities.—The annual death-rate per 1,000 in the principal foreign cities, according to the last weekly returns communicated to the Registrar-General, is as follows: Calcutta, 26; Madras, 40; Paris, 21; Brussels, 20; Amsterdam, 18; Rotterdam, 18; The Hague, 24; Copenhagen, 24; Stockholm, 17; Christiania, 26; St. Petersburg, 33; Berlin, 20; Hamburg, 23; Dresden, 28; Breslau, 27; Munich, 42; Vienna, 19; Prague, 22; Buda-Pesth, 30; Trieste, 23; Rome, 22; Turin, 30; Venice, 26; Cairo, 67; Alexandria, 44; New York, 28; Brooklyn, 25; Philadelphia, 22, and Baltimore 21.—*Medical Press and Circular*, September 4, 1889.

A New Hospital for Denver.—We learn, through the *Boston Medical and Surgical Journal*, that Denver, Colorado, has just completed a $30,000 hospital.

Death of Dr. Maurice Perrin.—The death is announced in Paris of Dr. Maurice Perrin, President of the Académie de Médecine, Inspector of the Service de Santé, formerly Director of the School at Val-de-Grâce, Physician-in-Chief of the Army of Marshal MacMahon in 1870, Commander of the Legion of Honor. Dr. Perrin commenced his career by teaching military medicine and ophthalmology at the Military School of Medicine. He was the author of several well-known works; among them may be cited, *Du Rôle de l'Alcool et des Anesthétiques dans l'Organisme*, a treatise on Surgical Anæsthesia (jointly with M. Lallemand), and a treatise on Ophthalmoscopy and Optometry.—*British Medical Journal*, September 14, 1889.

The University of Berlin and Poor Students.—It is reported that the Senate of the University of Berlin deprecates the substitution of free study for poor students in place of the present system of allowing such to obtain instruction and attend lectures on credit. The Senate believes that such an innovation might make it impossible for the poorer men to matriculate, as they might have too much pride to accept as a gift what they now merely get on credit.

NOTES AND QUERIES.

CONIUM OINTMENT IN PAINFUL RECTAL TROUBLES.

To the Editor of THE MEDICAL NEWS,

SIR: The conium ointment recommended by Whitla for painful rectal troubles can be much simplified and made of more general use by substituting for the *succus conii* of his formula the *alkaloid coniine*. I have used an ointment made according to the formula given below in a number of cases, and the success is all that is claimed by Whitla for the original combination. This is the formula:

℞.—Coniine	gr. ij.
Sol. ferri persulph.	℥ss.
Vaseline	℥j.

M. ft. ung.

Very respectfully yours,

O. T. SCHULTZ.

MT. VERNON, IND., September 21, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE TWO WEEKS ENDING SEPTEMBER 21, 1889.

BEARDSLEY, G. S., *Medical Inspector*.—Granted six months' leave, with permission to go abroad.

RUTH, M. L., *Surgeon*.—Order granting furlough revoked, and placed on waiting orders.

Medical Director HUDSON, *Medical Inspector* WOODS, and *Surgeon* DICKINSON will continue as President and members of an Examining Board for examination of applicants for the position of Assistant Surgeon in the Navy, at San Francisco, California, until June 30, 1890.